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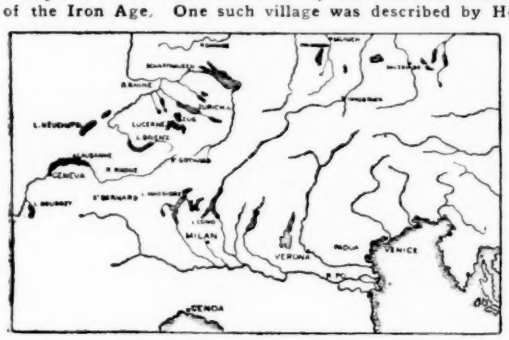

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"Quite a number of years have elapsed since my views on the treatment of tuberculous, rheumatoidal, and other conditions of joints by means of rest were first shaken and then altered by the observation of the results of the combination of movements and extension afforded by Mr. Hoefftcke's appliances. Up to that time I was imbued with the view, then accepted, that rest was a factor of vital importance in the treatment of diseased joints. I then learnt that if sufficient extension could be exerted to take pressure off the opposing articular surfaces of the affected joint movement was often most beneficial and often accompanied with little or no pain. This is an illustration of the law to which I have frequently called attention—namely, that everything that is universally accepted as true in surgery is invariably false. It is not possible to exert upon all diseased joints, such as those of the spine, enough strain to enable the application of this principle. Yet even in these joints it points the direction in which we should work.

Effect of the Apparatus on the Diseased Joint.

"The advantages afforded by the forcible separation of the diseased articular surfaces from one another, combined with free movement, are best shown by the use of a really efficient extension apparatus for the leg, which does not interfere with the functioning of the diseased joint. This is effected by the apparatus which Mr. Hoefftcke has devised. Not only does it exert great strain upon the articulation, keeping the surfaces from impacting on one another, but it permits of free movement of the joints of the leg, while enabling the sufferer to lead an active life. It keeps the parts well supplied with blood, which flows more freely through the vessels of the affected joint, while the muscles are kept functioning normally.

"The method of cure is based on the same principle as that applied with so much success in the treatment of tuberculous disease of the lungs at the institutions at Frimley and elsewhere. Since I first grasped the great advantage afforded by this principle, best applied by the apparatus already referred to, I have employed it largely with much success. If a diseased joint is moved forcibly without being extended the articular surfaces are bruised or otherwise damaged, and acute inflammation follows only too frequently; whereas under the influence of extension the surfaces of the fixed or displaced joint can be moved freely on one another, so that such movement is followed by a minimum degree of rapidly subsiding inflammation. The apparatus, by means of which a considerable amount of extension is kept up upon the affected joint, is applied to the limb and the patient at once proceeds to lead an active life.

"The mode of treatment varies to some extent with the joint affected. In many hip conditions it is necessary to employ forcible movement and extension before the apparatus is put on, whereas in disease of the knee the apparatus is applied at once to the deformed limb, extension being exerted gradually subsequently. Any residual flexion of the knee that cannot be overcome by the use of the splint alone can be met by forcible straightening of the limb on the extension table.

"The knowledge of the usefulness of the combination of extension and movement has served me in good stead in recent years, and I have been able to restore the functions of many joints which would otherwise have been fixed, probably in a bad position, and materially interfering with the usefulness of the individual."

This principle applies to the same extent to the ambulatory treatment of fractures, as the usual blood-supply through walking with a broken limb allows more callus to form than with the recumbent treatment and consequent slowing of the blood-supply.

The combative power of the improved blood-supply shows itself to a remarkable degree in rheumatoid, osteo, &c., arthritic cases.

If hips or knees are affected, the rest of the body—for instance, the spine, shoulders, arms, hands, and neck—is kept rigid in order to immobilize the painful joints and to establish gravity, in consequence slowing of the blood-supply results in the whole body. Adhesions form and even bony deformities are produced in other joints, thereby limiting the movements of the body generally.

When extension is applied to hips or knees and these joints are enabled to move without pain, the muscles in other parts of the body, which formerly were held rigid, relax their tension. The increased blood-supply through exercise of these joints absorbs the adhesions and freer movements result. Most of the cases sent to me which were cured by my extension treatment, especially those of arthritic origin, had been treated before with vaccine, serum, radiant heat, baths, radium, Thomas's splints, &c., without any lasting results. This shows that through exercise of the joints with extension the consequent increased natural blood-supply is of infinitely more therapeutic value in fighting and curing the disease than any artificial blood improver.

See also Proceedings of the Royal Society of Medicine, vol. ii., No. 8, June, 1909: Pathological Dislocation of Knee Corrected by Means of Apparatus. Proceedings of the Royal Society of Medicine, vol. vi., No. 2, 1912: A Case of Rheumatoid Arthritis.

(*To be continued February 5th.*)

A Statistical Investigation

OF

RECORDS OF TREATMENT AND BLOOD EXAMINATION IN 18,731 CASES OF

MALARIA.

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THESE investigations were carried out during the war on cases of malaria returned from the German East African campaign and admitted for treatment into military hospitals in South Africa. A routine system of blood examination was instituted, each man's blood being examined by the thick-film method on admission and subsequently at weekly intervals. Special malaria cards on which laboratory reports and records of treatment were kept were taken out for each man, and provided ample material for statistical research. These cards on sorting gave the following groups:—

Classification of Series.

1. Total cards analysed 18,731
2. Total cards clinically diagnosed malaria with negative smears ("negative cards") 9,943
3. Total cards diagnosed malaria with positive smears ("positive cards") 8,788
4. Total smears carried out in series 74,022
5. Positive cards—
   (*a*) Benign tertian ... ... 5,393, or 61%
   (*b*) Malignant subtertian ... ... 1,977, or 23%
   (*c*) Mixed infections (B.T. and M.T.) ... ... 1,418, or 16%

The large number of mixed infections indicates that infection with one type of malaria in no way protects against invasion with another. The converse is more likely to be true; the debility produced by malarial infection naturally reduces the effectiveness of the protective mechanism.

ROUTINE TREATMENT OF MALARIA.

The earlier records of this series showed marked variation in the actual dosage of quinine employed and in the duration of quinine treatment. A dosage of quinine of 5 or 10 gr. daily was frequently recorded, and was commonly associated with repeated relapses and progressive anæmia. Whatever may be said for the successful employment of such doses in mild cases of malaria, they were found to be totally inadequate for the severe massive and mixed infections commonly observed in troops invalided from the German East African campaign. Apart from the necessity of controlling infection as early as possible from the point of view of the ultimate cure of the disease, the question arose of undue pressure on the hospitals owing to the increased period in hospital of each case inadequately treated.

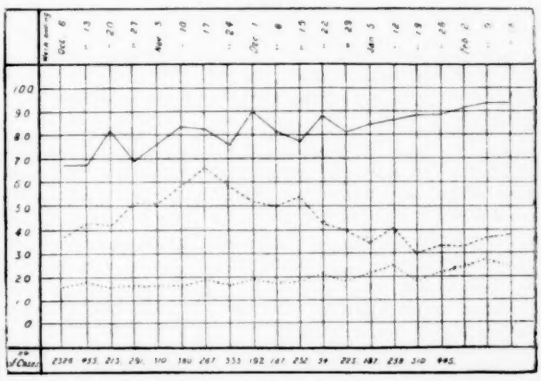
In November, 1917, definite instructions for the routine treatment of malaria were issued. All ordinary cases, irrespective of type, were ordered 10 gr. of quinine in solution three times daily for three weeks, followed by the same dose twice daily for one month and then 10 gr. daily for two months.

The beneficial effects of the increase of quinine employed in all cases of malaria is reflected in Chart 1. It will be observed that an increase in the number of days on which quinine was administered and the average daily dose of quinine is associated with a reduction in the number of days in hospital, and that the percentage number of days in hospital on quinine in October, 1917, rises from 67 per cent. of the total stay in hospital to over 92 per cent. in March, 1918. The average amount of quinine administered in all cases of malaria similarly rises from 16 gr. per case per day in October to 23 gr. per case per day in April. The gradual rise in these factors is accompanied by a gradual fall in the average period in hospital of all cases.

Period in Hospital of Each Type of Malaria.

It should be borne in mind that the same standard of clinical fitness and two consecutive negative smears at weekly intervals was required of all cases before discharge, irrespective of the particular type of malaria recorded. Furthermore, with regard to treatment, although the average daily quinine employed shows a gradual rise the increase applies generally to all cases

CHART 1.



Showing the beneficial effect of increase of quinine dosage on the length of malaria attack as evidenced by the number of days in hospital. Upper line = percentage number of days in hospital on quinine. Middle line = average number of days in hospital per case. Lower line = daily average grains quinine per case. The figures below the chart give the actual number of cases.

of malaria. Under these circumstances, for the same period the average duration of treatment of each type of malaria before discharge reflects—with a considerable degree of accuracy considering the large number of cases in each group—the relative resistance of each type of malarial infection to treatment. It should also be remembered that practically every man admitted to hospital had suffered at some time or other during the campaign from attacks of malaria. Table I. summarises the results of analysis in each type of case.

TABLE I.—*Relation between Quinine Treatment and Days in Hospital in 4905 Different Infections.*

Type of case.	No. of cases.	Average daily quinine (gr.)	Average days in hospital.
Benign tertian	1670	24·7	45·4
Malignant subtertian	473	25·2	43·6
Mixed infection (B.T. and M.T.) ...	318	24·2	63·1
Total positives	2461	24·7	47·3
"Negative" cases	2444	22·5	32·3
All cases	4905	23·9	39·9

In reviewing the above figures it is clear that: (1) Mixed infections are more resistant to treatment than either B.T. (benign tertian), or M.T. (malignant subtertian); (2) B.T. is as resistant or even more resistant than M.T., when the question of parasitological and clinical relapse is taken into consideration.

Benign tertian and malignant subtertian infections.—The ready response of B.T. infections (excepting chronic resistant cases) to quinine administration is reflected more in the rapid disappearance of parasites from the finger blood than in the freedom from relapses. M.T. infections, although in the first place more obstinate and difficult to eradicate from the finger-blood, once controlled, are far less prone to relapse. It should be noted that the occurrence of a parasitological relapse prevented the discharge of a patient in military hospitals until two consecutive negative blood reports had been recorded, although negative tests may have been recorded previous to the relapse. The long period of detention of benign tertian cases is largely due to the high percentage of relapses both clinical and parasitological which occurred in this infection.

Mixed infections.—The prolonged treatment required in mixed infection (M.T. and B.T.) is due partly to the resistance of these infections to the action of quinine, and partly to the frequency with which relapses of either one or the other (usually benign tertian) infection takes place. Almost without exception the occurrence of two types of malaria together in the same patient increases enormously the difficulty of control and eradication of either infection, and indicates a less favourable prognosis than in the case of pure infection with any one type.

Syphilis and malaria.—The resistance of malarial infections, even when involving one type only of malaria, in syphilitic subjects is very marked. Relapses are frequent and anæmia severe. The natural protective forces of the body are reduced in effectiveness by any debilitating influence. The chronicity of malaria in syphilitic subjects, in spite of thorough antisyphilitic and of antimalarial treatment, emphasises the importance of the natural protective mechanism of the body in combating malaria and in rendering effective the administration of quinine.

PARASITOLOGICAL RELAPSE UNDER QUININE TREATMENT.

Viewed in the somewhat indefinite light of ordinary clinical interpretation the word "relapse" would appear to imply a recurrence of acute symptoms in a resolving pathological condition which otherwise might reasonably have been expected to proceed to complete cure. The "relapse" of malaria, however, does not admit of such simple and precise interpretation, for it need not imply the presence of subacute or even chronic symptoms prior to the onset of the more acute manifestations; nor need it imply that a complete cure might reasonably have been expected. Relapses in malaria are the acute exacerbations of an otherwise continuous, and it may be entirely latent, systemic infection, where sooner or later the recurrence of acute manifestations is the invariable rule. Moreover, the term "relapse" is used not only where the latency interval is ten days to two or three weeks, but similarly to indicate an acute attack supervening after a latency interval free of all malarial symptoms extending over a period of from one or two months to one or two years.

Classification of Relapses.

(1) *Clinical or pyrogenic relapse.*—A recurrence of fever and its associated acute symptoms after a period of quiescence constitutes the true clinical relapse of malaria. Parasites are present in the peripheral blood.

(2) *Parasitological relapse.*—The reappearance of asexual parasites in the peripheral blood after one or more consecutive negative findings constitutes "parasitological relapse," which frequently occurs without clinical relapse, but will include any clinical relapse which may take place, its recorded duration being longer. For the parasitological relapse, based entirely on parasitic findings, embraces the whole period of the persistence of asexual parasites in the peripheral blood, and parasites can be demonstrated in the blood for some days before the onset and for a varying period after the subsidence of clinical symptoms. Frequent relapse is a clear indication that the host's defensive mechanism and any remedial measures adopted have failed to control the vegetative activities of the parasite. It is most prone to occur in untreated infections, in massive multiple, and particularly in mixed infections, in conditions of low vitality, and especially in the presence of a debilitating disease, such as syphilis. During the interval between attacks the parasites may either fall below the "detectable limit" or persist in numbers well above this limit.

In quiescent chronic malaria there exists a condition of armed neutrality—of temporary adaptation of host to parasite, of parasite to host. The extraordinary power of persistence exhibited by malarial infections, in spite of sustained and vigorous treatment, is a characteristic of the disease—a characteristic single, significant, dominant; a characteristic which demands cautious acceptance and careful investigation of all so-called "cures" of malaria. It is common knowledge that all other protozoal diseases of man and the lower animals exhibit tenacious persistency and are difficult of eradication.

Variations Presented by a Subclassification of Parasitological Relapse.

(*a*) Relapses to same type—simple infection:—
1. Malignant subtertian to malignant subtertian.
2. Benign tertian to benign tertian.
3. Mixed (M.T. and B.T.) to mixed (M.T. and B.T.).

(*b*) Relapses to different type—mixed infections:—
1. Benign tertian to malignant subtertian.
2. Malignant subtertian to benign tertian.
3. Mixed to benign tertian.
4. Mixed to malignant subtertian.
5. Malignant subtertian to mixed.
6. Benign tertian to mixed.

(*c*) Relapse from negative smears:—
1. Negative to malignant subtertian.
2. Negative to benign tertian.
3. Negative to mixed.

In examining the following tables it should be remembered that (1) these final figures are obtained by reduction from numerous preliminary detailed tables (unpublished). It is not possible to employ the results in one table in association with the results in any other table; and that (2) the total number of cases investigated vary in different tables owing to the fact that the data available in some cards are not sufficiently complete for all investigations, but may provide facts which can be utilised for statistical purposes. For example, a card may show full records of the various blood examinations made, but the records of the treatment given during the whole period of stay in hospital may be incomplete. Such a card would be of service for an investigation of parasitological relapse, but would be of no value in a correlation of relapse incidence and quinine dosage.

TABLE II.—*Final Analysis of 1281 Relapses under Quinine to Same Type of Cases Positive on Admission: Analysed Totals.*

Type of relapse.	Before parasite relapse— Average interval under treatment.	Average daily quinine.
M.T. to M.T. (156 relapses)	17 days.	21 gr.
B.T. to B.T. (1112 relapses)... ...	18 ,,	23 ,,
Mixed to mixed (13 relapses)	18 ,,	21 ,,
1281 relapses	18 ,,	23 gr.

TABLE III.—*Final Analysis of 399 Relapses under Quinine to Different Type of Cases Positive on Admission: Analysed Totals.*

B.T. to M.T. (116 relapses)	15 days.	20 gr.
M.T. to B.T. (144 relapses)	16 ,,	22 ,,
Mixed to B.T. (62 relapses)	21 ,,	20 ,,
Mixed to M.T. (24 relapses)	20 ,,	17 ,,
M.T. to mixed (22 relapses)	12 ,,	18 ,,
B.T. to mixed (31 relapses)	18 ,,	20 ,,
All positive cases relapsing to different type (399 relapses)...	17 ,,	21 gr.

TABLE IV.—*1276 Cases Negative on Admission Relapsing under Quinine to Different Types: Analysed Totals.*

Malignant subtertian. (232 cases)...	12 days.	20 gr.
Benign tertian. (995 cases)	14 ,,	20 ,,
Mixed infections. (B.T. plus M.T.) 49 cases ...	14 ,,	21 ,,
All cases negative on admission relapsing under treatment (1276 cases)	13 ,,	20 gr.

Frequency of Relapses Under Quinine in Each Type of Malaria.

The final results arrived at from an analysis of 2649 relapses occurring in a series of 14,802 cases of malaria under treatment in military hospitals are as follows.

Percentage Relapse Incidence.

1. All relapses in series—2649 out of 14,802 cases, or 17·9 % relapsed.
2. Of cases with initial negative smears... ... ... 14·1 % ,,
3. Of cases with positive smears ... ... 23·7 % ,,
4. In benign tertian malaria—
   881 out of 3877 cases, or 23·8 % ,,
5. In malignant subtertian malaria—
   143 out of 1565 cases, or 11·2 % ,,
6. In mixed B.T. and M.T. malaria—
   393 out of 1232 cases, or 39·4 % ,,

An examination of these figures indicates that the most intractable type of malaria from the point of view of control and prevention of relapses is a mixed infection of benign tertian and malignant subtertian. Moreover, the chances of relapse are more than twice as great in benign tertian than in malignant subtertian. The lower percentage incidence obtaining in cases with initial negative smears indicates that this group included the lighter infections, which were more easily controlled by the routine treatment employed in all military hospitals. The percentage of relapses in cases diagnosed clinically but not microscopically as malaria approximates sufficiently to the percentage relapses in malarial cases in which the diagnosis was proved microscopically to support the conclusion that the negative cases included in this series are cases of malaria. If cases wrongly diagnosed as malaria had been included the percentage relapses would be reduced to a figure markedly below that for known positives. All cases included in this series were troops returned from the German East African campaign; practically all had at some time suffered from malaria.

TABLE V.—*Relapse Analysis in Different Infections (6674 Cases) under Quinine.*

Infection.	Total cases positive on adm.	Total cases relapsing.	Av. No. relapse per case.	Cases relapsing per cent.	Av. relapse interval (days).	Av. daily quinine per case during interval.	Av. No. of days in hospital.
B. T.	3877	881	1·3	23·8	17·9	23·0 gr.	47·5
M. T.	1565	143	1·2	11·2	16·4	21·3 ,,	45·5
Mxd.	1232	393	1·1	39·4	16·7	20·6 ,,	66·3

The relapse-rate in each type per week is as follows:—Benign tertian, 3·5 per cent.; malignant subtertian, 1·7 per cent.; mixed infection (M.T. and B.T.), 4·1 per cent.

TABLE VI.—*Correlation of Quinine Treatment, Period in Hospital, and Relapses under Quinine.*

(A) *Cape Coloured Corps (All Types of Malaria).*

Period of observation.	No. of cases.	Per cent. relapses.	Average daily quinine.	Average period in hospital.
June–July, 1918	124	32·3	21·8	70
August, 1918	223	19·7	26·9	42
September–October ...	345	17·6	27·1	46
—	693	21·0	25·0 gr.	49 days.

(B) *Europeans (All Types of Malaria).*

January to March, 1918..	1871	18·8	23·8	38
April to June, 1918	919	11·1	23·5	31
July to September, 1918..	520	11·9	25·9	36
—	3310	15·6	24·0 gr.	36 days.

(C) *Benign Tertian Malaria: in Cape Coloured and Europeans.*

Race.	No. of cases.	Per cent. relapses.	Average daily quinine.	Average days in hospital.
Cape coloured	334	36	26 gr.	51
Europeans	1080	32	25 gr.	40

The relapse statistics in regard to the Cape Coloured Corps are of interest in view of the fact that an increase in daily quinine dosage from 21·8 gr. to 27·1 gr. is associated with a fall in the average period in hospital from 70 to 46 days and a reduction in the percentage relapses from 32·3 per cent. to 17·6 per cent. It will be observed that for the same type of malaria (benign tertian) the relapse incidence and average stay in hospital are greater for the Coloured Corps as compared with the European figures. This divergence would appear to be partly accounted for by the lessened resistance exhibited by coloured races to infectious diseases.

Relapse Interval.

It is necessary to emphasise that the relapse interval of these records refers only to parasite relapses under quinine, which may be considered to be more reliable data for study than records of clinical relapses unsupported by microscopical examination. The average number of days of the relapse interval are as follows: Benign tertian relapse: from initial negative smear, 14 days; from initial positive smear, 17·9 days. Malignant subtertian relapse: from initial negative smear, 12 days; from initial positive smear, 16·4 days. Mixed infection (M.T. and B.T.) relapse: from initial negative smear, 14 days; from initial positive smear, 17 days.

PERSISTENCE OF ASEXUAL PARASITES.

Before discussing the question of the persistence of asexual forms in the peripheral blood it is necessary to state that in all cases under examination included in this investigation the *thick film* was used throughout. The information available from weekly analyses, apart from its interest from a research point of view, supplied valuable indications as to the results obtained in each area from the treatment administered. In view of the almost universal prejudice of the soldier against quinine, and the firm belief held by some that quinine is distinctly harmful and liable to cause heart disease, it was necessary to exercise the greatest vigilance in regard to its administration. The persistence of parasites in the blood over a long period focussed attention on these cases, and resulted in either an alteration or modification of treatment, or discovery of a patient who was deliberately but covertly avoiding his doses of quinine. The fact that except in unusually chronic cases asexual parasites are not found in thick smears after a few days' administration of quinine raised the question as to what proportion of these cases in which asexual parasites persisted indefinitely in the blood were due to avoidance of quinine. Accordingly a system of recording each dose administered to each patient was instituted in one hospital, the quinine being administered in solution; each dose was actually seen to be swallowed and was then noted.

The results obtained in this hospital were in accordance with those generally obtained in the treatment of malaria in military hospitals in South Africa. Records of presence or absence of parasites in finger blood were available at about weekly intervals; cases responding to treatment were separated from resistant cases, and especial attention was thus secured for the latter group.

It should be noted that in each type of malaria the interval between blood examinations is less than the average relapse interval, so that although records of daily blood examinations were not available it is reasonable to assume the presence of parasites in the blood on the days intervening between two positive examinations, especially in view of the large proportion of heavy and resistant infections.

Final results of analyses of the records with regard to persistence of asexual parasites are set out in the following tables:—

TABLE VII.—*Persistence of Asexual Forms under Quinine.*

Type of malaria.	Total of cases.	Average interval between blood examinations.	Cases positive on re-examination.		Average persistence of asexual forms in cases positive on re-examination.
			Number.	Per cent.	
Malignant subtertian	591	8 days (21·4 gr.*)	82	14	16 days.
Benign tertian	3171	8 ,, (23·2 gr.*)	710	22	19 ,,
Mixed M.T. and B.T.	281	8 ,, (20·6 gr.*)	155	55	22 ,,
All types positive on admission...	4043	8 ,, (22·7 gr.*)	947	23	19 days.

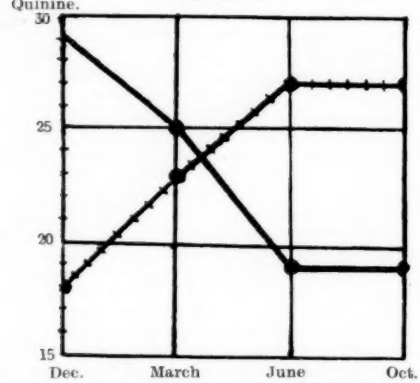
* Average daily quinine in interval.

Owing to continued pressure on the "small dosage" school the average daily quinine in all cases showed a gradual rise. This desired result was further assisted by the issue of definite instructions laying down a "standard" treatment for malaria. Table VIII. is an analysis of 4043 cases indicating that the rise in quinine was associated with a marked reduction in the number of positive cases remaining positive at the end of eight days' treatment.

TABLE VIII.—*Results in 4043 Malaria Cases Admitted to Hospital with Positive Smears on Re-examination After an Average Interval of Eight Days' Quinine Treatment.*

Three months ending—	Number of cases.	No. of cases positive on re-examination.	Per cent. positive on re-examination.	Average daily quinine.
Dec. 29th/17 ...	1081	313	29%	18 gr.
March 30th/18	1491	368	25%	23 ,,
June 29th/18 ...	909	160	19%	27 ,,
Oct. 5th/18 ...	562	106	19%	27 ,,

CHART 2.



Showing how a rise in quinine is associated with reduction in the number of positive cases remaining positive at the end of eight days' treatment. Hatched line = average daily quinine in interval between examinations. Continuous line = percentage cases positive on re-examination.

It will be observed that of 4043 cases of malaria admitted into hospital with positive parasite findings 23 per cent. show parasites persisting in the blood on the 8th day in spite of an average daily dose of quinine of 22·7 gr. The average persistence of parasites in the finger blood in these cases was 19 days. This fact indicates the severe nature of the malaria cases admitted to military hospitals, and demonstrates the ineffectiveness and slow action of quinine in destroying malaria parasites in unhealthy and debilitated individuals.

Recent publications viewed from the point of view of the specific action of quinine disclose a certain degree of shaken confidence in the parasitotropic value of this drug. Quinine is undoubtedly the most valuable single remedy at present known, but its repeated failure to eradicate malaria, even when exhibited in doses and amounts limited only by the toxicity of this drug, indicates that unless it is aided by the natural protective mechanism of the body frequent relapses and long-continued illness occur, as was clearly shown in recent campaigns in malarial countries; the exigencies of military service gave rise, especially in the tropics, to conditions in which the individual's natural resistance to disease is reduced to the minimum. In the German East African campaign, owing to the extreme exhaustion of the troops admitted to field hospitals for treatment, the action of quinine could not be described as more than palliative, most cases progressing to massive infections, frequently relapsing, which were not reduced until better health conditions—as on return to South Africa—gradually engendered a more effective natural resistance. It seems highly probable that the latter is largely represented by "phagocytosis."

It is possible that the action of quinine in malaria is analogous to the action of opsonins on bacteria in infected tissues. Parasites damaged but not destroyed by quinine may then be actually ingested and destroyed by phagocytosis. There appears to be no doubt that the leucocyte is of paramount importance in the prevention and cure of malaria. Perusal of published works on malaria, particularly those of the earlier writers, leaves the impression that parasites disappear from the finger blood soon after the administration of quinine. The above figures show that on an average in 4043 cases parasites could still be demonstrated in 23 per cent. of cases when examined after an average interval of eight days, and that the parasites in these resistant cases persisted for an average period of 19 days, treatment being 22·7 gr. of quinine per day. In considering this apparent anomaly it is necessary to bear in mind the following points: (1) In this series the thick-film method is used for diagnosis which increases the chance of a positive result by about 30 times, and in the publications referred to the usual method of examination is presumed to be the thin-film method. (2) The bulk of available literature refers to quinine treatment carried out amongst civilians reasonably fed and acclimatised and for the most part protected from mosquitoes, exposure, and fatigue.

The resistant cases in this series were often severe massive infections, frequently of mixed type occurring in non-acclimatised individuals recruited from South Africa; owing to exigencies in warfare in German East Africa they were subjected to severe physical strain and hardship involving exposure to tropical sun and rains and unsuitable or insufficient food. In such cases the therapeutic effects of quinine are more slowly produced.

THE SEXUAL PARASITE OF MALIGNANT SUBTERTIAN MALARIA.

The gametes of subtertian malaria are sausage-shaped bodies, longer than the diameter of a red corpuscle showing pigment aggregated into a clump near the centre. These bodies are commonly known as "crescents" in view of their characteristic appearance. The importance of this phase in the life-history of *P. falciparum* is that its presence in sufficient numbers in the peripheral circulation renders the individual infective and a danger to a community in which malaria-transmitting anopheles are present.

Frequency of crescents in peripheral blood.—Considerable difference of opinion prevails as to the frequency with which crescents are found in malignant tertian infections. Deaderick states that, in his experience,

"Crescents are very rarely seen in blood obtained from the superficial circulation. They are also infrequent in the experience of Plehn, Stephens, Christophers, Ziemann, Wellmann, Annett, Dutton, Elliott, Kendall, and others."

Craig states that:—

"It often requires a long and patient search to demonstrate the presence of crescents in the blood of individuals who have suffered from æstivo-autumnal infections, and while I believe that a prolonged search would show crescents in 50 per cent. of such cases, still in the study of several hundred cases I have only been able to demonstrate this form in a little over 33 per cent. Rogers found that crescents were present only in 10 per cent. of the cases he observed in Europe. Mason believes that crescents are more frequently observed in cases of malaria which have been contracted in the tropics, but have returned to temperate regions, and that in the tropics it is much more rare to observe this form of plasmodia."

Craig does not agree with Mason, as he has found that the percentage of cases showing crescents in the tropics is practically the same as in temperate regions.

With regard to the frequency of crescents in the peripheral blood it is necessary to consider the following points: (1) method of examination (thick or thin blood smears); (2) number of consecutive examinations; (3) stage of disease at time of observation (acute, convalescent, or chronic); (4) influence of previous treatment; (5) influence of treatment at time of observation; and (6) defensive mechanism of patient (general health).

The statistical records in regard to crescents available from these investigations refer only to the results of examination of thick blood smears, the average number of consecutive examinations being four in each

case, each separate examination taking up a maximum of about five minutes. The treatment laid down for all cases of malaria has been previously noted. The thick film method of examination increases the chances of finding crescents by about 30 times when compared with half an hour's examination of a thin blood film. The original infection in these cases was usually contracted several months previously in German East Africa under active service conditions. During this time quinine prophylaxis was usually carried out, and there was generally a history of repeated attacks necessitating admission to field hospitals. The cases were therefore usually admitted to union hospitals with an acute or subacute attack occurring in a more or less chronic infection associated in the more severe cases with a markedly debilitated condition characterised by anorexia, wasting, shortness of breath, and anæmia. (Tables IX. and X.)

TABLE IX.—*Classification of Cards Showing Crescents During Period in Hospital under Quinine Treatment.*

Three months ending—	Total cards showing C.	Cards showing C only.	Cards showing first C's then R's, or R's & C's.	Cards showing first R's then C's, or R s & C's.	% C cases showing R's during period in hospital.	% C cases showing C's only during period in hospital.
Dec. 29/17 ...	576	495	60	21	14·1	85·9
March 30/18	760	475	79	206	37·5	62·5
June 29/18 ...	469	346	64	59	26·2	73·8
Oct. 5/18 ...	167	126	15	26	24·6	75·4
Total all cases...	1972	1442	218	312	26·9	73·1

R = ring form of parasite; C = crescent.

TABLE X.—*Frequency of Crescents in Peripheral Blood.**

Three months ending—	M.T. infection	Mixed infection	Total cases with M.T. infection.	Total cases showing crescents.	Per cent. M.T. infections showing crescents in peripheral blood.
Dec. 29/17...	790	487	1277	576	45·1
Mch. 30/18...	662	497	1159	760	65·6
June 29/18...	334	290	624	469	75·2
Oct. 5/18 ...	191	144	335	167	49·8
Total ...	1977	1418	3395	1972	58·1

* Average period of observation 52·4 days.

The production of crescents in sufficient numbers in the peripheral blood to enable their presence to be discovered in a thick film indicates that an environment has been created (usually by quinine treatment) sufficiently unfavourable to menace the existence of the asexual generation, the presence of the sexual parasites being an effort on the part of the parasite to prevent total eradication by transference by means of a mosquito to a more favourable environment. So long as the parasite is able to maintain its numbers by a vegetative cycle this method of propagation is selected and preferred by the organism. This is indicated by the fact that crescents are not found in acute stages or in untreated cases of the disease.

The continuous exhibition of inadequate doses of quinine appears to favour the production of crescents owing to the fact that while an unfavourable environment is produced the dosage of quinine employed does not reduce the crescent-forming "rings" sufficiently to prevent the detection of the crescents produced. The presence of numerous crescents in the blood suggests that the asexual generation has been damaged and reduced but not eradicated. The disappearance of crescents shows that progress has been maintained in reducing the infection.

It will, therefore, be seen that crescent formation occurs in infections resistant to treatment in which the destruction of parasites has been slowly effected. The formation of crescents may be prevented in malignant subtertian infections by vigorous and effective quinine treatment in suitable cases owing to the rapid reduction and destruction of the asexual generation, thereby cutting off the supply of "ring" forms destined to develop into crescents. Crescents do not appear similarly in the peripheral blood in untreated infections or markedly resistant infections inadequately treated owing to the fact that the measures adopted for treatment do not menace the asexual generation or establish an unfavourable environment. The appearance of crescents is not an unfavourable sign in the treatment of malignant subtertian malaria in which "rings" only are present in the finger blood, as it is an indication that the therapeutic measures employed are to some extent effective against the asexual generation. Disappearance of all "ring" forms from the peripheral blood and failure to produce crescents indicates that the infection has been hard hit and so reduced in numbers as to justify a favourable prognosis.

CASES UNDER TREATMENT: TIME OF APPEARANCE OF CRESCENTS IN PERIPHERAL BLOOD.

With regard to the time of appearance of crescents in the blood the results of treatment with varying doses of quinine in cases of malignant subtertian malaria showing at first "rings" only in the peripheral blood are indicated in the following summarised tables:—

TABLE XI.—*Quinine Treatment and Time of Appearance of Crescents in Blood.*

Series. (Daily quinine treatment).	No. of cases.	Days of treatment until appearance of crescents.	Average daily quinine.
10 gr.	26	11	10 gr.
11 gr. to 20 gr. ...	110	11	16 ,,
21 gr. to 30 gr. ...	164	9	28 ,,
31 gr. to 45 gr. ...	12	9	39 ,,
	312	9·5	22 gr.

It will be observed that the time of the appearance of crescents is a shorter period in the case of the larger doses of quinine, but that the average time of appearance of crescents is 9·5 days, with an average daily dose of quinine of 22 gr. The shorter interval suggests that an unfavourable environment was more quickly established in the case of the larger doses of quinine.

DURATION OF CRESCENTS IN PERIPHERAL BLOOD.

The crescent is a form of the malignant subtertian parasite particularly resistant to the action of drugs. Quinine has no obvious direct action on crescents, but indirectly it is the most powerful remedy at present available for ridding the blood of them. Its action in these cases is entirely on the ring forms of the parasite which are controlled, reduced, and destroyed, thereby eliminating the forms of the parasite from which crescents are produced. In one series of 1798 crescent infections in which the average daily quinine administered during the persistence of crescents was 25 grains, the average persistence of crescents in the peripheral blood was 15 days. It is therefore clear that crescent infections are not formidable, and tend to clear up in the ordinary way on adequate quininisation. In cases where quinine is insufficient to control the infection and prevent relapses, as in very debilitated individuals, supplementary treatment with organic arsenic preparations, especially "606," given intravenously, has proved useful in breaking down the resistance of the asexual parasites to the action of quinine. These preparations do not appear to exercise any direct destructive action on crescents. A series of 27 cases was treated with intravenous injections of tartar emetic without any definite action of this preparation on crescents being demonstrable. Tartar emetic also has no influence in preventing relapse in malarial infections.

The following figures indicate that so long as an adequate dosage of quinine is employed no obvious advantage as regards persistence of crescents is gained, in ordinary cases of malignant subtertian malaria in which crescents are present in the finger blood, by the addition of intramuscular injections of soamin or intravenous injections of "606" preparations. It

should be noted (see Table XII.) that in 1577 cases treated with an average dose of quinine of 24 gr. daily the crescents persisted in the blood for 15 days for all treatments.

TABLE XII.

No. of cases	Average daily quinine.	Duration of crescents.	Treatment series.	No. of injections per case.
952	25 gr.	15	Quinine only.	—
506	21 ,,	15	Quinine and inorganic arsenic.	—
56	23 ,,	16	Quinine and soamin.	3
63	24 ,,	21	Quinine and "606."	3
1577	24 gr.	15	All treatments.	—

It is therefore clear that the eradication of crescents is satisfactorily secured by the control of the asexual generation of the malarial parasite by adequate quininisation. The same is true of the sexual forms of the benign tertian parasite.

This paper is included in a report by the Director of Medical Services to the Minister of Defence, Union of South Africa, on "Malarial Research in South Africa during the War." Acknowledgments are due to Colonel P. G. Stock, Director of Medical Services, and Colonel G. H. Knapp, Deputy Director of Medical Services, for sympathetic support in sanctioning the necessary arrangements for carrying out malarial researches; to Lieutenant-Colonel Andrew Balfour, and Lieutenant-Colonel J. W. W. Stephens, for valuable criticism and advice; to the commanding officers and medical officers of S.A.M.C. hospitals, and medical officers of S.A.M.C. laboratories, Lieutenant-Colonel G. W. Robertson, Majors Targett-Adams, D. Pullon, J. C. Venniker, Captains Pearson, Impey, Luke, Garrow, and Walker, without whose keenness and coöperation it would not have been possible under war conditions to carry out these researches.

THREE CASES OF INFLUENZAL PNEUMONIA

WITH SEPTICÆMIA AND EXTENSIVE MEMBRANOUS COLITIS.

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THE cases here recorded occurred among a series of severe influenzal pneumonia cases during the winter of 1919 at the No. 2 N.Z. General Hospital, Walton-on-Thames. The details of history and of bacteriological and pathological findings are given as fully as possible, because the post-mortem examinations revealed a condition of the alimentary canal which has, as far as I know, not been definitely recorded or frequently observed.

The interest centres about the following points:—

(1) The cases were not in any way associated with one another before or during their illness.

(2) They were all apparently definite respiratory infections in which an initial "influenzal" attack developed a rapidly progressive broncho-pneumonia, becoming markedly septicæmic.

(3) Alimentary symptoms were practically absent in each of the cases, and any marked pathological condition of the gut was not anticipated from the slight clinical symptoms observed.

(4) Vaccinal prophylaxis had not been undertaken, except in one case, where a single dose had been administered five days previously to the commencement of the illness.

(5) Treatment during illness varied in each case. In Case A, two doses of 1 12th gr. corrosive sublimate in 1 c.cm. of saline had been given intravenously on the fifth day before death; some abdominal discomfort was complained of the same night and following day, and seven evacuations occurred during this interval, but there was not any violent intestinal disturbance, and during the last three days semi-normal stools were passed. It was very largely because of interest attaching to several influenzal cases in hospital at the same time, in whom more violent intestinal disturbance had followed the intravenous use of corrosive sublimate, that especial attention was directed to the alimentary condition in this case at the post-mortem examination, for no other case which had received intravenous mercury died. In Case B no mercurial or other intravenous medication was given, and in Case C intravenous corrosive sublimate was not given; a mixture of urotropin 25 per cent. and phenol 1 per cent. in saline, a total dose of 8 c.cm., was given intravenously on three occasions on the fourth and second day before day.

(6) Blood culture was attempted four days before death in Case A only, but proved negative. Cultures made at the post-mortem examination from heart, blood, and spleen gave pure streptococcal cultures in each case; the organisms were also present in direct film examinations from the spleens of Cases A and B.

(7) The pathological condition of the respiratory organs of Cases A and C were practically identical. A patchy broncho-pneumonia, becoming confluent through associated œdematous infiltration of intervening lung tissue, was most marked in the lower lobes of both lungs, extending discretely in the upper lobes. Bronchial secretions were not markedly purulent, but fairly profuse and frothy. The bronchi, trachea, and larynx were deeply injected. These broncho-pneumonic areas caused an obvious dark coarse mottling where they reached the pleural surface, but no obvious pleurisy occurred, nor was there excess of pleural effusion.

Definite hæmorrhagic areas, varying from microscopic sizes to extravasations of about ½ inch across, were irregularly distributed throughout the more intensely infected lower lobes. Film preparations of the bronchiole secretions of the more confluent areas showed the presence of pneumococci, streptococci, and *Micro. catarrhalis*, the two former predominating. A few *B. influenzæ* were present, with *M. catarrhalis* and a smaller proportion of streptococci and pneumococci in the less markedly inflammatory areas. Streptococci (markedly hæmolytic), pneumococci, and a few *B. influenzæ*, as well as *M. catarrhalis*, staphylococci, and *B. proteus*, were obtained by culture from the lung tissue.

Detailed Conditions.

Lungs and pleura.—The lung condition of B differed considerably from those of A and C. In this case, accompanying a less intense broncho-pneumonia of the right lower lobe and a still slighter condition of the left, there was an abscess cavity situated near the lower border of the right upper lobe, about 1¼ inches in diameter, its wall reaching but not perforating the pleura at one point; its cavity was full of pink-coloured pus and masses of necrotic tissue; the wall was ill defined. An extensive pleurisy was associated with this abscess, thick, lightly adherent flakes of purulent exudate covering the whole pleural surface, and a fair amount of purulent fluid being present in the pleural cavity. The left pleura was normal. Smear preparations and cultures made from the pleural fluid indicated pure streptococcal infection, while those from the abscess a mixed infection, in which streptococci largely predominated. In all cases the bronchial and tracheal glands were enlarged, congested, and œdematous, being most marked in B, where evidence of early suppurative change was found in the larger glands.

Heart.—The heart in each case was of normal size, the evidence of disease being only found in the dark congestive state of the muscle walls, some small endothelial hæmorrhages occurring around a more general endothelial injection and a pinkish coloration of the aortic cusps, most evident in A. Pericarditis or excess of pericardial fluid was absent in each case. Blood-smears and cultures were made; in each case streptococci were recovered by culture in A and B, a heavy growth in C sparingly. Film preparations showed the organism present in A only.

Spleen.—The spleen of each case showed the usual signs of an intense septic infection, being slightly enlarged, abnormally pink in colour, soft and friable in consistency. Numerous small hæmorrhages occurred in A, and a single abscess about the size of a pea in B. Smear preparations gave evidence of streptococci in B only, but by culture streptococci were recovered from both A and B.

Kidneys.—The kidneys showed the usual pathology—acute septic infection in each case, more intensely congested in A and C than in B, and by microscopic section showing cloudy swelling, acute parenchymatous

degeneration of tubules, and intense congestive glomerulitis in each case. In A especially hæmorrhagic effusions into Bowman's capsules and renal tubules were numerous.

Suprarenals, pancreas, liver, peritoneum.—The suprarenals in B and C were apparently normal; in A they were necrotic and degenerative. The pancreas was normal in each case. The liver showed in each case signs of all parenchymatous changes, being unduly pink in colour and increased in size and weight; Glisson's capsule was tense, the parenchyma bulging at the cut surface and its normal pattern indefinite, these changes being most marked in A. The peritoneum in each case was apparently normal; no excess of peritoneal fluid occurred, and no external evidence of the extensive alimentary condition found later was apparent from a general inspection, except in A, where a dull, congestive coloration of the cæcum and transverse colon first attracted attention.

Alimentary Canal.

Œsophagus and stomach.—The inflammatory changes found present commenced in the œsophagus in A and B, but not in C. Both of these cases showed a deeply injected mucosa, which for the lower 1½ or 2 inches became dark in colour and œdematous. This condition extended into the stomach, the cardiac region being intensely injected in A and besides two small superficial ulcers showed the earliest signs of a minute membranous desquamation of the gastric mucous membrane. This condition was not observed in B or C, in which, however, the mucosa was very definitely injected.

Duodenum, jejunum, ileum.—In the duodenum of A and B there occurred further intense congestion, submucous hæmorrhages, and in the former loss of epithelium from the free edges of several rugæ, but no evidence of the membranous necrosis. In C the duodenum was not affected. The jejunum in all cases was respectively much less affected, small isolated areas of the same submucous injection occurring in A only. In the ileum of A and B the intense congestive condition present in the duodenum was again very evident, and in both cases the final 3 feet of the small bowel was marked by extensive submucous hæmorrhages and patches of necrosis. In C the congestive stage only was present.

Cæcum.—The cæcum of each case showed the most marked condition. In A practically the whole mucosa consisted of a mass of diphtheritic necrosis of a slate-green colour, with here and there small areas of intense congestion; the lymph follicles were greatly swollen and obvious. This condition extended for 3 to 4 inches up the ascending colon, in which region the necrotic areas were showing some desquamation. There was no definite ulceration, and the appendix, although injected, showed no evidence of necrosis. In Case B the condition was similar to that of A, only of much less degree, while in C there was no evidence of diphtheritic colitis present, but the same intense submucous injection and small hæmorrhages.

Transverse and descending colon.—In each case these portions of the bowel showed a similar picture, but of less intensity and more circumscribed in area. In A the condition extended from the cæcum to within 5 inches of the anus.

This condition of membranous colitis was found in only these three cases who died from influenzal pneumonia. It must be admitted that at previous post-mortem examinations complete investigation of the bowel was not always carried out—the absence of any peritoneal appearance suggestive of such profound colitis having been taken in such cases as sufficient evidence of apparent normality, especially as sufficient reason of cause of death had been demonstrated in the pulmonary lesions found, and in some cases by the source of septicæmic infection by positive blood culture. It is, however, quite possible that some of the earlier cases examined may have also had a similar bowel condition, which was missed by failing to carry out a complete investigation, for until the gut was opened up both B and C, as described above, showed no evidence of the inflammatory changes found.

FIG. 1 (Case A).—Cæcum opened out and showing at—1. Ileo-cæcal valve, congested. 2. Three of the many intensely congested and necrotic green lymph follicles, which obviously protrude from the greatly thickened and inflamed mucosa. 3. Area of more intense hæmorrhagic infiltration of mucosa, intensely red and less necrotic. 4. Area of necrotic superficial desquamation.

FIG. 2 (Case A).—Transverse colon, showing the condition of necrotic pale-green superficial desquamation, continuous with that of the cæcum and descending colon. The whole submucosa is intensely hæmorrhagic and swollen.

Conclusion.

A. Abrahams, N. Hallows, and H. French[1] do not describe this condition in their post-mortem findings, and apart from mentioning the fact of the apparent normality of the appendix and bowel generally, do not definitely state whether the bowel was examined in detail throughout. In the Special Report of the Medical Research Council on influenza[2] the intestinal conditions observed were apparently not severe, and, except for the reference to the probability of enteritis being fairly common but that records were not sufficiently kept to give figures on the point (p. 104), the colitis above described is not noted. There is just the possibility that unless the bowel was examined in detail in all cases this condition may have been missed, for one of the features of the condition has been the absence of peritoneal involvement. The acute colitis described in these three cases is, I believe, in keeping with an intensely virulent septicæmic infection, in which profound cytological necrosis may be very rapidly produced; and somewhat similar conditions have been reported to occur in puerperal septicæmia.

I am indebted to my wife for the skilful water-colour drawings from which the illustrations were made.

[1] THE LANCET, 1919, i., 1.
[2] Medical Research Council, Special Report Series, No. 36.

AMPUTATIONS:

THE EFFECT OF WAR KNOWLEDGE ON TEACHING, PRACTICE, AND AFTER-CARE.

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IN many fields of knowledge the experiences of the recent war have led to considerable change; the latter is, perhaps, more evident in the teaching and practice of such operations as amputations than in any other sphere of medical work. Before the war amputations amongst the civilian population were few and small. Mr. W. Woods, of St. Thomas's Hospital, made me a list of the amputations done there, which made this clear. During the war they have been frequent and have accentuated the fact that the surgeon's work, although the determining factor, was also a bridge to the work of the limb-maker, which has been raised to a higher level of art, with a correspondingly higher level of results and criticism. Our recent knowledge of amputations was derived from the infected cases treated during the war, so that when surgeons returned to civilian practice and relative asepsis it was possible that the old methods would come back, but the instrument-maker has learned that he can get better results after some amputations than in other cases; hence much of our recently gained knowledge has come to stay. This is a great convenience for the student, who will only have to learn about few amputations instead of many.

Amputations of the Lower Limb.

Beginning with leg amputations, from amputations at the metatarso-phalangeal joints to a high Syme above the ankle-joint, all have gone. No longer will student or teacher be bothered with the operations of Lisfranc, Chopart, Pirogoff, Roux, Tripier, Skey, Hey, &c. The high Syme, which gives a very good stump, will remain; the patient will learn to walk well and be nearly as active as he was before. By losing the front of a foot, the patient has lost all spring; moreover, the artificial limb is an unsightly nuisance, the ankle being much broader than the normal ankle and necessitating odd boots and considerable wear of clothing. In some instances the tendo Achillis becomes attached to the scar and tilts the stump forward, making the patient bear on the scar and rendering the stump useless. There are many objections to a stump of a Syme amputation; the foot being largely a passive agent for transmitting pressure, is therefore easily and satisfactorily replaceable, so that the operation is likely to be largely replaced by the easier and more satisfactory one through the middle of the leg.

From accounts given by patients, those who have been amputated through the middle of the leg get along nearly as well as do those who have had a "Syme," whilst they also avoid unsightliness and expensive upkeep. In this amputation the scar must not be terminal; the operation is done with anterior and posterior skin flaps. The former is the larger, making the scar posterior. In this way the amputations of Teale, Hey, and Faraboeuf are dispensed with. Ascending the leg, Stephen Smith's operation, together with Price's modification of it, is gone, from useful knowledge and practice. The retention of the patella, as in the operations of Lister, Gritti, and Stokes-Gritti, is not asked for or desired by the limb-maker. Moreover, it has been learned that the patella often becomes loosened and drawn forward by the quadriceps, making the stump and the operation useless. All that remains in the thigh is amputation with anterior and posterior flaps with a posterior scar, like a Carden, but higher up.

Amputation at the Hip.

Perhaps the greatest change has been evolved at the hip-joint. Esmarch's modification of Furneaux Jordan's amputation was more widely taught than any other method, but it was soon found to yield a large bulky useless stump, including irregular and new-formed periosteal bone, which had to be re-shaped at a further operation in order to remove all redundant soft tissues defining the pressure points, particularly the tuber ischii, all muscles being cut 1 inch long. The new operation is amply described in Martin Huggins's excellent book on amputation stumps,[1] and is somewhat like the amputation at the hip-joint, advocated by Sir Frederick Treves, surgeon, and Faraboeuf, anatomist. It will suffice here to say that skin flaps are used, and muscles are cut short; by sawing through the neck of the bone the femoral head is left behind, filling the acetabulum instead of leaving a hollow cup behind. It is really an amputation through the neck of the femur by means of an anterior racquet incision. The triradiate scar is anterior, pulling the skin flap tight over the tuber ischii so as to leave it prominent, and giving the limb-maker no excuse for a badly fitting limb. The soft parts are cut so short that they cannot push the artificial limb off the tuber.

Thus of all the many amputations at the hip-joint only one remains. It is usually performed after an amputation of the thigh, to adapt the patient for the work of the fitter. Further, the student has not even to remember any name in connexion with the operation. It may well modify or even replace the second stage in Esmarch's modification of Furneaux Jordan's operation or remain with us as an operation adapting the part for the limb-maker.

It is no use operating less than 3 inches above or below the level of the knee-joint. In the thigh there is an anomaly, the man with a long stump and a long bony lever has to lift a lesser limb and lighter weight than does the man with a short stump and a short bony lever. This is a wrong state of affairs which can only be met at present by supplying the short thigh-stump man with a very light strong artificial limb. If this should prove uncontrollable it can easily be altered. Hence it is no use operating to divide the bone less than 3 inches below the lesser trochanter. Let the amputation be done through the neck of the femur and the man will walk farther, better, and with less aid from a stick.

Amputations of the Upper Limb.

The upper limb is not restricted to weight-bearing: its skilled and active uses have spurred the ingenuity of men in replacing it.

Amputations of the upper limb have been immensely simplified; all forearm amputations are now done with equal anterior and posterior skin-flaps and circular division of muscles and bone. It is no use amputating less than three inches below the elbow. Such an amputation is treated and fitted with an above-elbow artificial limb. Amputations of upper arms are done with a circular incision, which, as it nears the axilla, is met by an internal incision along the vessels, making the circular amputation racquet-shaped. At the shoulder-joint the amputation is carried out similarly. All names are gone. Nothing useful can be fitted to a short upper-arm stump; a long upper-arm stump can be made very useful, and a forearm stump is excellent. It is a very great loss for a man to lose his elbow-joint by re-amputation; the stump should always be considered by surgeon and instrument-maker before anything is done.

Amputations Remaining in Use.

In the lower limb there remain (1) amputations of toes; (2) a Syme's amputation; (3) through leg amputations with skin-flaps; (4) amputations of thigh with long anterior and short posterior flap; and (5) a new amputation through the neck of the femur with skin-flaps. In the upper limb there remain (1) amputations of fingers; (2) amputations of forearm with equal skin-flaps; (3) a circular amputation of upper arm; and (4) Spence's amputation at shoulder.

Linear Amputation: Re-amputation and Excision.

No amputations should leave the limb in its final condition less than 3 inches below or above the elbow- or

[1] Oxford Medical Press: Messrs. Frowde, Hodder and Stoughton.

knee-joints. Amputations through the knee- or elbow-joint have been shown to be inferior to others and are to be discarded. There is another form of operation introduced by Major Fitzmaurice Kelly, R.A.M.C. It was designed to save as much of the limb as possible and to be followed by a further operation, often cinematising in the upper limb, adapting the stump to the fitter, to be performed later under more favourable circumstances. It was simply a flapless through-and-through chop or guillotine amputation. It was used also and independently by the Central Powers and called the "linear amputation." In consequence of this operation and of the almost universal sepsis two other operations have come more into vogue than they ever did before; they have been called re-amputation and excision. Both are measures designed to trim and adapt the stump for the work of the limb-fitter.

Re-amputation has the great advantage that all nerve-ends and scar tissue are removed completely. Excision of nerve-ends without the whole of the surrounding scar tissue being removed often fails, its smallness and incompleteness accounting for the result. The healing of a wound by primary union, first intention, in no way excludes the presence of micro-organisms in the scar tissue within them. This has been proved by the observations of Dr. L. S. Dudgeon and Lieutenant-Colonel P. W. G. Sargent[2] and later again by Dudgeon.[3] Indeed, a wound that has healed by first intention seems more likely to have irritant infective scar tissue shut up in it than one which has suppurated and been adequately and frankly drained. In fact, drainage in war wounds is the key to their successful treatment. The presence or absence of suppuration is only an indication of the number and character of micro-organisms present in the wound. Local excisions are very likely to be incomplete, too little being removed.

In one case, after a surgeon had very successfully excised some nerves, pain returned, becoming so bad that the suffering man travelled all the way home from Barbadoes; he was unable to wear his artificial leg and had considerable pain night and day. On examination the fibula looked and felt rather longer than the tibia, but a skiagraph showed the apparent elongation of the fibula to be due to the deposit under its end of a substance permeable by X rays. The bone had not been sealed and there was some new-formed bone thrown out near its end. The tenderness, as shown in the patient's own diagram, was in this area; the existence of irritative infective scar tissue under the fibula was diagnosed and the nerves, regenerating, had grown into it. The lower end of the fibula, with the cicatrix, cutaneous and subcutaneous, below it, and with the posterior tibial artery and nerve, were excised through a racquet-shaped incision. The effect was shown at once; pain ceased and pressure over the fibula could be borne. Finally the patient returned to Barbadoes well.

Nerve Regeneration and "Malingering."

During the interval between the amputation and the fitting of the artificial limb the scar tissue in the wound usually becomes non-irritant and non-infective, through the agency of the plasma and lymph. The ordinary cutting short of nerves prolongs this time, as does the injection into them of alcohol, giving the plasma and lymph more chance. But from time to time, as in the case related,[1] the nerves grew, reinfecting the scar tissue by carrying organisms into it, or they re-innervate tissue which has remained infective and irritant, so that pain returns after an interval of comfort. Sleeplessness, drawing, and aching return, and the phantom limb reasserts itself. Patients thus afflicted are in great danger of being regarded as malingerers; indeed, such patients have been submitted to me, and I have learnt again and again that regeneration of nerves into still irritant and infective scar tissue may be responsible for the return of the patient's pain. This danger was illustrated in the case of a soldier sent to me at the 5th London General Hospital, who had had an amputation through the upper leg, just below the knee; later, parts of his internal and external popliteal nerves had been excised higher up, leaving behind the painful bulbs. The nerves regenerated and innervated the still irritant and infective nerve bulbs, with return of the pain and the phantom. The length of the illness depressed the patient and convinced him that he would not recover, and operations did him no good; it is easily comprehensible how he became neurasthenic. His condition deceived his Board, who found that he was a malingerer; but he was not, and after re-excision of the nerves, nerve-bulbs and scar tissue he began slowly to improve—slowly because of his convictions that he would not get better. He did not become well enough to work; his nervous system has never recovered He is useless and miserable. The more operations a man has the deeper is impressed upon his mind the impossibility of recovery. Pain is worse if a nerve is in the proximity of an artery with a silk ligature on it. Such ligatures are better excised, as they or their representatives maintain the irritation, although some of them do no harm. The silk becomes broken into fragments, which are carried away.

Heat, massage, exercise, and like measures bring more blood to the part, quickening the circulation and sterilising the scar tissue, but they act slowly, and the sufferer is usually impatient.

Neurasthenia.

As it is impossible to stop the regeneration of nerves it is necessary to take care that the new fibres do not grow into infective irritative tissue. It is very important in such cases to estimate the degree of neurasthenia present. In almost all cases some degree will be found, for the patients have a hideous past to reflect on, a miserable present to bear, and a dark future to look forward to. The very poverty of our artificial limbs convinces them of their future uselessness. It is sometimes necessary to be very patient before a man can be got to try to help himself. Over such people there must be no differences of opinion. Almost all are neurasthenic, but at the bottom of the neurasthenia is a real cause, however much it may be exaggerated by the patient. It is the duty of those in charge to find that cause, to advise the Ministry of Pensions of it, and not to follow the easy path of regarding all complaints as due to the action of the central or psychological factor.

Conclusion.

For some time we have been conducting experiments with light metal limbs at St. Thomas's Hospital, with the help of Sir Arthur Stanley and the consent of Colonel Webb, Director-General of the Ministry of Pensions. These experiments have been most successful, showing that about 90 per cent. of thigh amputations can advantageously be fitted with light metal limbs, with which the men are able to work with less fatigue and more satisfaction. Moreover, in her excellent instructions Miss Randall showed that men fitted with light metal artificial limbs could be more easily and perfectly instructed in the use of their stumps. They learn more easily. In some cases Dr. Burnett Rae, late of the Cambridge Hospital, Aldershot, and of Millbank, has given most helpful information and treatment by hypnosis. He has done few cases for me, and those the worst, yet they have all permanently improved, and some have become quite well. After-treatment is necessary in most cases—in such a form as return to work without undue delay. Pains and troubles may recur and then they seem to be more definite than they were formerly. Patients should not be kept in hospitals or homes, but should be sent back to work and healthy surroundings.

[2] Bacteriology of Aseptic Wounds, Medical Societies' Trans., xxx., 27. [3] Horace Dobell Lecture, R.C.P., 1908.

[4] Dr. Urquhart of St. Thomas's Hospital has shown that regenerating nerves can carry organisms with them. Months before this it was known that they carried down foci of inflammation. These were shown in the Arris and Gale lecture for 1919 before the Royal College of Surgeons of England, and in the illustration, p. 88, in the Practitioner of February, 1920, of the section of a regenerative neuroma.

ENCEPHALITIS LETHARGICA IN LANCASHIRE.—The case of a young woman in Bolton suffering from this disease has been reported to the medical officer. Two other cases are under observation in Ashton-under-Lyne, where, during the past 12 months, six cases have occurred, only one ending fatally. None of the Ashton patients has, it is stated, been in contact with one another. The two patients have been under observation for several months.

ADOLESCENT ALBUMINURIA IN RELATION TO LIFE ASSURANCE.*

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WITHIN half a century of Bright's discovery of the connexion between albuminuria and disease of the kidney, observers in several countries had noticed that there were types of albuminuria which did not seem to connote kidney disease. Besides those due to the admixture of secretions from the bladder, glands, or urethra, there were other forms produced by temporary causes, such as pyrexia, pregnancy, severe exercise, the taking of alcohol or of drugs. But apart from all of these albuminuria was found to be common in younger subjects, chiefly children or adolescents, without obvious causation, and leading to no ill-results, at any rate in the immediate future. It was often found in candidates for life assurance, and it has exercised the minds of more than one generation of medical examiners. Much has been written upon the subject, and the present author need not repeat what he wrote in 1906.[1] But we may now ask ourselves whether the advance of knowledge has enabled us to define this form of albuminuria more clearly and what its true nature may be. Questions arise as to (1) its possible relation to arterial blood pressure; (2) any series of observations which have been made on the point; (3) any chemical or physio-chemical change in the blood during the disorder; (4) the possibility of any endocrine influence at work; (5) the tests by which it can be distinguished from other forms of albuminuria; (6) its prognosis and possible predisposition to nephritis. The following notes bear on some of these points.

Many names have been given to this form of albuminuria, none of them quite satisfactory, since they are taken from various symptoms or conditions not always present or denote some hypothesis at present unproved. The two least objectionable terms, in the writer's opinion, are albuminuria of adolescents, and hæmatogenous albuminuria. The former (W. Moxon) alludes to the epoch at which it chiefly occurs; the latter (Sir Nestor Tirard) to its dependence on a state of the blood circulation or of the blood itself, rather than of the kidney, a dependence which has come to receive increasing credence.

Causation.

The principal theories of the causation of albuminuria of adolescents are as follows:—

(1) Some early observers connected it with masturbation.

(2) Mechanical conditions of the circulation have been regarded as its cause (F. W. Pavy and others)—either a low, a high, or a variable arterial blood pressure. The effects of posture support this view. It is well known that the albumin is commonly absent during rest; and in many subjects the action of the heart is habitually unstable, and the response to exertion exaggerated. Puberty, with its augmented nervous and vascular tension, may be contributory (Clement Dukes). The lymphatic temperament or diathesis has also been invoked.[2] Vaso-motor instability has therefore been inferred as a cause. There is also a response to emotion, a sort of blushing of the kidney, in some bashful persons.[3]

(3) The blood itself has been thought to be at fault (Sir Almroth Wright). It has been found deficient in coagulating power; this deficiency has been attributed to disordered calcium metabolism due to rapid growth, especially of the bony system. Such rapid growth has taken place in some subjects; and the characteristic skin condition (urticaria-like tache), chilblains, hæmorrhages, and other concomitants of hypo-coagulable blood are often in evidence. Acting on this theory calcium salts have been administered, and in many cases the albumin has disappeared for the time. Large doses must generally be given for this purpose.

(4) The fault has been laid at the door of the digestive system. Sir James Goodhart, reviewing 200 cases of his own, noted the appearance of the albumin in the after-breakfast hours, a period when phosphates and sugar are apt to be passed. He thought there was a state of surfeit, with subtoxic effects. Mr. H. G. Armstrong, however, with large experience of boys at Wellington College, found the albumin in "chapel-fainters" before breakfast. Rapid growth—over-weights were to under-weights as 3 to 2—and bolting of the food, were, in Goodhart's view, the two chief causes. Dr. R. Saundby also laid stress on large eating and gouttiness.[4]

(5) The lordotic theory has been advanced by some German physicians, who found in some cases an exaggerated lumbar spinal curve.

A Case of Albuminuria of Adolescents.

The following is a description of a well-marked case of this form of albuminuria:—

A student, aged 17 years, was sent to me by his family doctor in 1908 on account of the presence of albumin in his urine. He had a fair family history, but an uncle and great-aunt had had much rheumatic fever; there was a personal history of rheumatism in knee and wrist three years earlier, also of severe measles three months ago, during which the albumin was discovered. He was liable to acute headaches, sometimes with vomiting. He had grown very fast, and was now 6 ft. 1¼ in. in height, weighing 12 st. 5½ lb. in ordinary clothing. The pulse-rate varied greatly, between 70 and 135, being increased unduly on exertion. The radial arteries felt hard, but the arterial tension showed much variation at different times, generally raised on exertion and falling during rest—I cannot usefully give figures because the sphygmomanometer then employed was of an old type. The heart's impulse was situated 2¼ inches below the nipple, and was sometimes of a forcible knocking character. The urine was examined many times. That passed in the forenoon always contained a good deal of albumin; on one occasion there was only a whitish cloud on boiling, but at other times about 0·5 per cent. by Esbach's tube. The urine passed in the early morning always contained much less, and once was found quite free from albumin. That passed in the evening varied much, but was never free. The urine was concentrated, s.g. usually 1026–1030, very acid, and contained much urates, deposited on cooling, or on using Simon's test (nitric acid introduced through a pipette under the column of urine), when the whole column was filled with the dense mass of urates. Crystals of uric acid were also deposited, and under the microscope some crystals of triple phosphate and calcium oxalate were seen, with mucus cells, an occasional red blood disc, squamous epithelium and cylindroids, but no casts. The coagulability of the blood was tested by Sir Almroth Wright's method, and found apparently deficient. A small proportion of the albumin was thrown down by saturating the urine with magnesium sulphate in the cold, and was therefore judged to be globulin. Mr. Devereux Marshall reported that the vessels of the fundi were quite normal, and in all other respects the patient appeared to be in excellent health. Calcium lactate was given, but in doses not exceeding 30 gr.; it appeared to diminish the amount of albumin. Had it been administered in larger doses it might have had a fuller effect. The patient was advised to leave his studies, and spend six months in open-air work in the country. He did very well, and is now, 12 years later, aged nearly 30 years, said to be in excellent health, an athlete, and engaged in physical training.

In this case the conditions often found in adolescent albuminuria were present in a marked degree. He had both the circulatory instability, with great variability of heart-rate and arterial tension, on the one hand, with the rapid bodily growth and hypocoagulable blood on the other. The albuminuria was considerable in degree and not easily controlled either by rest or by calcium lactate.

Diagnosis.

The diagnosis of this form of albuminuria rests on the following points:—

1. The age is juvenile or adolescent and the general health is good, but the temperament is most often neurotic. There is a form of senile albuminuria which appears to be harmless, but that is not now in question.

2. None other of the signs of kidney disease are present, such as dropsy, hypertrophied heart, continuous high arterial tension, habitual headache, or dyspepsia.

3. The albumin present is not in large quantity (say, under 1 per cent.), and it is absent, or at all events diminished to a very small quantity, in the urine passed after the night's rest.

The above are submitted as the three leading diagnostic tests. The following are confirmatory conditions, but are not in all cases uniformly present.

* An introductory paper read at a discussion at the Assurance Medical Society, Nov. 3rd, 1920.

[1] Trans. Life Assur. Med. Off. Assoc., 1906–7, p. 61; THE LANCET, 1906, ii., 497.

[2] See note by the author, THE LANCET, 1907, i., 1456.

[3] See the author's paper, Trans. L.A.M.O.A., loc. cit.

[4] Discussion in Proc. Roy. Soc. Med., iv., Sect. Med., p. 123.

4. The urine is generally acid to excess, depositing a dense mass of urates when nitric acid is introduced beneath a column of urine. Numerous crystals of calcium oxalate are often formed on standing.

5. There are neither renal cells nor blood cells in the urinary sediment, nor any casts, except, perhaps, a few of the hyaline kind.

6. The albumin contains a larger proportion of globulin than is found in the albuminuria of kidney disease.[5]

7. The passing of albumin is generally stopped for the time by the free administration of calcium salts, say one drachm of the lactate on three successive nights.

8. The arterial blood pressure is usually low, and almost always varies much with slight causes. The pulse is often quickened and the heart's action excitable. Sir W. Broadbent found the right ventricle beating powerfully, whilst the left acted weakly.[6] A history of fainting attacks is not uncommon.

9. The coagulation index of the blood is lowered, with signs of increased transudation.

10. In many cases there has been rapid bodily growth.

It would be of importance if we could add a test to measure the efficiency of the kidneys. A good many such tests are on their trial, based on the output of water, of urea, of diastase, or of salts, or on the removal of indigo-carmine or other substances from the blood.[7] But none of these are yet available for clinical use in the examiner's room. Sir Almroth Wright and Dr. G. W. Ross, of Toronto, published in 1905 a method of estimating renal function by determining the salt-concentration of the urine. They found that the efficiency so estimated continued normal in this form of albuminuria.[8]

Prognosis.

The prognosis of this form of albuminuria is of especial interest to us. The lapse of time since the disorder was first recognised should surely provide data for forming conclusions. Unfortunately few observers keep complete records, and they must needs for our purpose cover many years; impressions and incomplete histories are of but little value. Some data may, however, be put forward.

(1) Dr. Clement Dukes, whose observations on numerous Rugby scholars led him to recognise the disorder as long ago as 1878, is convinced that there is "little likelihood of its proving the precursor of organic disease of the kidneys." In a number of instances Dr. Dukes examined the urine of the same persons in after years. In all cases except one, he tells us, he found it free from albumin; the exception was in a case examined shortly after leaving school.[9]

(2) Sir J. Goodhart noted the after-history in 38 cases, in most of them for over five years. None of them had passed on into Bright's disease, but the period of observation was short.[10] Dr. R. Saundby recorded a like experience with 24 cases, the period ranging from 6 to 13 years.[11]

(3) Dr. Hugh Maclean has reported on the percentage occurrence of albuminuria among 50,000 (healthy) soldiers in France and 10,000 recruits at Aldershot. These reports deal with a large area of statistics, and, being drawn up with much exactitude, will probably become classical of their kind. Albuminuria was found in 5 per cent.; in 2 per cent. "gross albuminuria," and in the remaining 3 per cent. traces of albumin only. Military training was found to have no influence in producing this albuminuria. Of those who were subsequently attacked with war nephritis, the great majority had not shown albuminuria earlier. "Previous albuminuria," Dr. Maclean concludes, "plays little or no part in the ætiology of war nephritis." This is valuable evidence. If the adolescent albuminuria were due to kidney injury, it would surely predispose to nephritis, but it is clear that at any rate war nephritis is not promoted by it.[12]

Summary of After-history of 20 Cases.

In 1906 I submitted a schedule[13] showing the after-history of 19 cases in whom I had found albuminuria of this type when examined for life assurance. The albumin was detected by boiling the acidulated urine, and when only a trace was present this was neglected. Adding a further case, I can now give a summary account of 20 consecutive cases of albuminuria of adolescents, examined between 1884 and 1896. Their average age on entry was 27·7 years. Of the 20, 5 have died: (1) after 7 years, of phthisis; (2) after 7 years, of accident; (3) after 25 years (at the age of 75 years), of senile decay and cardiac failure following accident; (4) after 19 years, of phthisis, in an asylum; (5) after 32 years (at the age of 59 years), of chronic arthritis. Two others were last heard of at periods of 16 and 15 years after entry. They were then living, aged 50 and 48, and believed to be healthy. Of the remaining 13 (two-thirds of the whole number) I have been able to obtain information to the present time. They are all living. The average period since the albuminuria was discovered in these 13 cases is 30 years; their average age is now 56 years, and they are all so far as known healthy persons. No evidence appears from the after-history of these cases, prolonged in some of them for more than 30 years, of any subsequent kidney trouble. The numbers are small, but the notes and histories have been carefully and accurately kept, and the results are now placed upon record as a contribution to the prognosis of this form of albuminuria.

Eligibility for Life Assurance.

If the adolescent type of albuminuria is clearly indicated and the life is in all other respects a healthy one, I would accept it at ordinary rates for an endowment policy payable in 25 years. For a whole-life policy a small advance would in most cases be imposed. If the conditions in any respect fail to reach the first-class standard an advance would be advisable, whatever the form of policy. For although the evidence points, in my view, decisively to the harmless nature of this form of albuminuria, one must regard the general opinion of life office examiners, who have not yet reached this position; and one must give the office the benefit of a cautious estimate.

A Hypothesis of Pathology.

I should like, in conclusion, to try to state a working hypothesis of the pathology of this form of albuminuria. Perhaps we may get some light upon it by approaching the subject from another side. Why does not the colloid albumin of the blood always pass through the walls of the blood-vessels of the kidney into the urine, as it passes through those of the pancreas into the juice of that organ? Urea passes through, and uric acid, pigments, and salts; why not dextrose and albumin? Moreover, if egg albumin is injected into the blood it passes out into the urine; not so serum albumin. Why is one taken and another left?[14] Physiologists can only tell us that such selective action is commonly associated with living cells. The epithelial cells of the glomerulus have a secretory action as to urea and a defensive action as to albumin; but how it is done we do not know.

We may then inquire as to what causes may disturb the defensive action of the epithelial cells of the kidney towards albumin and lead to its passing into the urine. First, the cells may be diseased. In nephritis we see the cells, granular and degenerate, cast off into the urine, and albumin comes with them, no longer retained by the defensive mechanism. Then, in the second place, are there any conditions apart from the healthiness of the cells which may disturb their defensive action? Two such conditions may be suggested. One is the tension of the blood in the capillaries. It is reasonable to suppose that the cells can only work normally when the blood tension is within certain limits, and that a very high or a very low blood pressure may interfere with the defensive mechanism and lead to the passage of albumin. If, then, the vaso-motor control of the arteries of the kidney is disturbed, so that a much higher or lower tension is produced in the capillaries, the cell functions may be impaired. Another condition of the efficient

[5] Dr. Mackenzie Wallis has recently established this fact on a firmer basis (see Proc. Roy. Soc. Med., xiii., Sect. Med., p. 96).

[6] Sir W. Broadbent: The Pulse, 1890, p. 270.

[7] Professor J. B. Leathes, Dr. Langdon Brown, and others, in a recent discussion at the Medical Society of London, THE LANCET, 1920, ii., pp. 933, 949.

[8] Wright and Ross, THE LANCET, 1905, ii., p. 1164; Ross, Trans. L.A.M.O. Assoc., 1906–7, p. 85.

[9] Dr. C. Dukes: The Albuminuria of Adolescents, Brit. Med. Jour., 1905, ii., p. 848.

[10] Proc. Roy. Soc. Med., iv., Sect. Med., pp. 109, 144.

[11] Ibid., p. 120. For Teissier's observations on 28 cases during ten years, see Trans. Med. Soc. Lond., xxvii., p. 80.

[12] Dr. H. Maclean: Albuminuria and War Nephritis among British Troops in France. Medical Research Committee, Special Report No. 43, 1919.

[13] Loc. cit.

[14] Stewart, Manual of Physiology, p. 494.

action of the cells may be the integrity of the blood itself. On this much more light is needed, but the suggestion may be made that in hypocoagulable states of the blood—associated with deficiency of calcium salts—the colloid albumins, and especially globulin, are much more ready to pass through the vessel walls. Then the defensive mechanism of the cells may fail and albuminuria appear.

These hypotheses would account for the occurrence of albuminuria in earlier life, from causes connected, not with the kidney, but with the blood and its circulation. A further suggestion may be made. Is it possible that the cells of the kidney epithelium may sometimes, in old age, undergo a senile change, which is not what we commonly understand by nephritis, nor attended by its clinical signs, and that this change may allow albumin to pass through into the urine? This would explain the cases of long-standing senile albuminuria which have been recorded (by the present writer amongst others) in which death eventually occurred from other causes, sometimes at a very advanced age. Some of the cases lately described under the name of "leaky kidneys" appear to be of this class.[15]

A CONSIDERATION OF THE POST-OPERATIVE MORTALITY OF APPENDICITIS,

ESPECIALLY IN CHILDREN.

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WITH BACTERIOLOGICAL REPORT OF BLOOD IN A FATAL CASE

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OPERATIONS for appendicitis are a development of the past 30 years, although the condition was recognised and treated by operation a few years earlier; but after 1890 more and more cases were treated by operation, and early in the present century the name of the disease became widely known.

Twenty-five to twenty years ago late operations were the rule and early operations decidedly exceptional. Cases were not diagnosed as readily or as quickly as they are now, and the sufferers were not so easily persuaded to undergo an operation. No doubt many cases died undiagnosed or unoperated on; and a large proportion of operations were for abscesses of many days' duration, which were treated with great success by simple drainage. Cases of general peritoneal infection seldom recovered. It is not altogether surprising that the mortality from appendicitis 20 years ago was barely half the rate at the present day, according to the Registrar-General's returns. At the present day the disease is rarely undiagnosed. Fortunately many cases are discovered at onset, and are submitted to an immediate operation, with the happiest results.

Owing to the advance of surgical knowledge and technique, general peritoneal infection is robbed of much of its terror, and a very considerable proportion of patients with general infection recover. The operation is a very common one; cases are treated almost daily at all large hospitals. Every operating surgeon has had a large experience in these cases, and yet the mortality shows no sign of diminution. Dr. A. M. N. Pringle, medical officer for the borough of Ipswich, has kindly furnished me with the local records and the Registrar-General's report of the mortality from appendicitis in England and Wales from 1901 to 1918, inclusive; the mortality in 1918 was almost double that of 1901.

Another interesting fact is that the period of childhood and early youth is the most dangerous, nearly half the total number of deaths from appendicitis occurring between the ages of 4 and 20. Of course, it may be argued that the number of cases suffering from appendicitis has increased in an equal or even greater proportion during this period; but, as appendicitis is unfortunately not a notifiable disease, it is not possible to verify this. Certainly far more cases are diagnosed and operated upon now than was the case even 20 years ago, and I think it may be taken for granted that the figure 2416 represents little more than the post-operative mortality for the year 1918. Very few, if any, practitioners at the present day would not advise operation, and few patients decline to avail themselves of it. Is this large mortality unavoidable?

[15] Mackenzie Wallis, loc. cit.

Advantages of Early Operation.

It is an undoubted fact that an operation during the first 24 hours is practically free from danger, and every operating surgeon is glad to see a case as early as this. The appendix is removed with the poison contained within it, the abdomen closed without a drain, and convalescence is rapid and uneventful. During the second 24 hours often the result is as satisfactory, although, of course, there is some risk that the infection may have spread beyond the appendix wall. It is of supreme importance to the sufferer that the disease should be recognised at the earliest possible moment, and the operation performed without any avoidable delay. Too frequently the patient, or the parents or friends, do not at once realise the gravity of the trouble and send for a doctor. The disease is not easily diagnosed at its commencement, and the doctor may hesitate about sending the case to a hospital or calling in a surgeon until he is convinced of the necessity; very precious hours may thus be lost. The larger number of cases are still operated upon after the ideal time has gone, and when the infection has already spread beyond the appendix; there is then peritoneal suppuration, either localised or general.

The increased risk of operation, especially upon children, during the first week, after the time of election has passed—i.e., during the third, fourth, fifth, and sixth days—is, I think, recognised by a good many surgeons. Figures given at an interesting discussion at the Medical Society of London some years ago showed that the death-rate rose rapidly at this time from 2 per cent. on the first day, 2·8 per cent. on the second, to 19 per cent. on the fifth and 22·7 per cent. on the sixth, subsequently falling to 8 per cent. on the seventh and 7 per cent. on the eighth day, and thereafter continuing to fall. An operation during the second week, which usually consists in opening and draining a fairly large abscess, is attended by little danger.

Deaths Due to Infection of Blood During Operation.

Some ten years ago it was my misfortune to lose several cases of children who were operated on during the fifth or sixth days of the disease. The cases were all very similar, treated in the same way, and died with the same symptoms. In each case there was a localised abscess well shut off from the general peritoneal cavity, and in each the condition appeared satisfactory at the time of operation. The abscess was opened, after carefully packing off the peritoneal cavity with gauze, if this had to be crossed, the pus as it escaped carefully mopped up, the abscess cavity swabbed out with gauze till all pus had been removed, a drainage-tube and gauze wick left in the cavity, and the wound closed around the drain. At first the patient appeared to be doing well, but after a definite incubation period, generally about 24 hours, a serious change took place. The pulse became rapid, the face pallid, expression anxious, sometimes there was a rise of temperature, but sometimes it became subnormal; drowsiness with intervals of restlessness and, perhaps, delirium, followed, with an occasional shrill "meningeal" cry; the pupils became dilated and irresponsive to light, and death followed in a few hours. Post mortem nothing could be found. There was no peritonitis, no pus, and only a little serum in the abscess cavity.

What was the cause of death? It was certainly not due to shock or delayed chloroform poisoning. I have no doubt whatever that it was due to the direct infection of the blood at the time of operation.

Defence against Infection Outside the Appendix.

A localised abscess is the result of natural effort to fight the infection. In some cases the disease is thus overcome without surgical interference, although at the present day a case is not often left to chance in this way. There are two main walls of defence set up when the infection has passed beyond the appendix to prevent the lethal germs becoming active in the blood. The outer wall is the layer of plastic lymph which is rapidly thrown out from the surrounding tissues, sealing off the general peritoneal cavity and preventing the rapid diffusion of the infected pus through the abdomen. But it also sets up a barrier against invasion of the blood and lymphatic vessels in the omentum, intestine, &c., which form the abscess wall. The layer of lymph lining the abscess acts like the porcelain of a Berkefeld filter, allowing fluid toxins to pass through into the circulation, but holding up the living particulate organisms, bacilli and streptococci, and preventing their entrance into the blood stream. This wall, often lightly disregarded, is in reality of the greatest importance. In course of time the toxins which have entered the blood, bringing about a rise of temperature and pulse and febrile symptoms, cause the development of antibodies which gradually neutralise them, until some time during the second week a condition of equilibrium may be established in the blood and the temperature and pulse may fall to normal. The abscess has "ripened," to use an obsolete term, and a condition of comparative immunity brought about. An operation during this stage is almost free from danger. In the opening of such an abscess fœtid pus with the characteristic odour may flow over the wound in the abdominal wall, which may be sutured round a drainage-tube, and may heal without redness practically by first intention. This is the second wall of defence, taking a week or more to build.

I conclude that in the fatal cases mentioned above by swabbing out the abscess cavity I removed some portion of the protective layer of lymph, thus damaging or destroying the first means of defence, and that owing to the early date, the fifth or sixth day of the disease, the second means—the antibody protection—had not been built up, and that a direct infection of the blood with some of the lethal organism, probably the *Streptococcus fæcalis*, occurred. After a short incubation period the symptoms of a severe blood infection declared themselves. I brought forward this theory in an article[1] published in 1910. I am now in a position to supply what I believe to be a proof of its accuracy.

A child, aged 10, was admitted to the East Suffolk and Ipswich Hospital at 3 P.M. on Oct. 10th suffering from appendicitis. The illness commenced on the morning of the 8th with pain in appendix region, followed by vomiting. Temperature on admission 100° F., pulse 108, condition good. There was a small tender lump in the right iliac region, obviously an inflamed appendix. It was decided to operate at once. The abdomen being opened at the edge of the rectus the appendix at once came into view. It was acutely inflamed, curled on itself, and adherent to cæcum and meso-appendix. The adhesion was firm, evidently due to a previous attack; the appendix was dissected off and removed. The meso-appendix was much inflamed and thickened; a small quantity of pus, about half a drachm, escaped during the separation and was at once mopped up. A clean area was left, which was swabbed out with weak carbolic lotion, a drainage-tube and gauze wick impregnated with bipp introduced, and the rest of the wound closed. On the following day, the 11th, the child appeared to be doing well; temperature 98°, pulse 108. She had slept well during the night.

On the 12th she did not seem quite so well; temperature 97°, pulse 120, abdomen normal, drain removed. On the 13th she had had a restless night, with vomiting; bowels acted. She was drowsy during the day, and at 6 P.M. was evidently much worse; restless, screaming at intervals, with pupils widely dilated. Pulse 140; expression anxious. Some blood was drawn from the basilic vein and one pint of normal saline with bicarbonate of soda introduced. Temperature 97°. The child was very restless all night, pulse becoming more rapid and feeble; death took place at 4 A.M. on the 14th, three and a half days after the operation. The blood was given to Mr. Cade, bacteriologist to the hospital, for bacteriological examination. A streptococcus grew readily in the cultures and was proved by various tests to be *Streptococcus fæcalis*.

The clinical symptoms in this case were identical with those of the cases previously described, and were proved to be due to the invasion of the blood stream by the *Streptococcus fæcalis*—there was nothing else to account for them—which no doubt gained entrance to the blood during the removal of the inflamed and adherent appendix. I think it may reasonably be concluded that the other cases which I have mentioned, in which the symptoms were identical, died from the same cause.

Conclusions as to Treatment.

What conclusions are we to draw to guide us in our treatment? There will be general agreement as to the great importance of operation at the earliest possible moment after the commencement of the attack, preferably during the first 24 hours, while the infection is confined within the appendix. But when the patient, a child, is seen for the first time by the surgeon during the third, fourth, fifth, or sixth days, when the infection has spread beyond the appendix and a localised abscess is formed, the alternatives are immediate operation or delay until the second week (when there is considerable immunity to blood infection).

I cannot help thinking that the safer, though certainly not the easier, course is to wait, although if anything untoward results the surgeon will probably be blamed for his Fabian tactics. Appendix abscesses very rarely burst into the peritoneal cavity if the patient is kept at rest in bed, on a scanty and easily absorbable diet, and the bowels are not disturbed by aperients. During the second week the abscess may be opened and drained with the minimum of danger. But if it is decided to operate at once during the dangerous period I think it is absolutely essential that nothing but the introduction of a drainage-tube into the abscess cavity should be attempted with no swabbing, no handling, no interference of any kind, and, above all, no removal of the appendix. The latter may be safely done many weeks later when all infection has subsided. The great danger of blood infection occurs especially in children; adults appear to have a far greater power of resistance, but to them, too, the same rule should apply.

In cases where there is general peritoneal infection, when the appendix is perforated or gangrenous and free in the abdominal cavity, I think it should always be removed with as little disturbance as possible, and free drainage to the bottom of the pouch of Douglas with a large drainage-tube provided. Of course, with the Fowler position I should not think it justifiable in such case to delay operation, at whatever stage of the disease the patient is seen.

Bacteriological Report of Examination of Blood in a Fatal Case by H. M. CADE.

Varying amounts of blood were inseminated in nutrient bouillon and a taurocholate of soda broth. After 48 hours' incubation at 37° C. these were found to contain a pure culture of a short-chained streptococcus. Subcultures were made on agar, blood-agar, and gelatin. After 48 hours' incubation examination showed a pure culture of the organism. In order to determine, as far as possible, into which group of streptococcus this organism could be relegated, its fermentative reactions were tested on various sugars in peptone water and the following results obtained: Acid formation in lactose, glucose, saccharose, and mannite; no change in inulin. Litmus milk was clotted with the formation of acid and neutral red reduced. No hæmolysis was observed in the blood-agar cultures. A white mouse was inoculated with 1 c.cm. of the 48 hours' broth culture; the organism was non-pathogenic to this animal. Whilst admitting that various strains of streptococci show variability in fermentative reactions, especially when old cultures are used, I am of opinion that, taking into consideration the fact that all the tests were made with fresh cultures, together with the morphology of the organism, its non-hæmolytic power and non-pathogenicity to the white mouse, it should be grouped as a *Streptococcus fæcalis*.

[1] Brit. Med. Jour., 1910, ii., 508.

TWO UNUSUAL CASES OF SMALL INTESTINE OBSTRUCTION.

BY W. H. OGILVIE, M.A., M.CH. OXON., F.R.C.S. ENG.,
SURGICAL REGISTRAR, TUTOR, AND DEMONSTRATOR OF PHYSIOLOGY, GUY'S HOSPITAL.

Strangulation by a Band, with Absence of any of the Usual Symptoms on Admission.

IN most surgical cases the history, the patient's symptoms and the objective signs combine to build up a picture on which a diagnosis may be founded and treatment decided upon. In the following case I had to decide whether to trust my eyes or ears, to explore the abdomen on the history alone in face of the clinical findings, or to trust the latter and mistrust the history. I wrongly chose the latter course. Three things influenced me in this decision: first, that I did not know the patient, and had no confirmation of his story from a medical man; secondly, that the passage of flatus as well as fæces is very unusual in any obstruction other than that of a Richter's hernia; thirdly, that the man was a plumber, and since he had very good teeth he might be suffering from lead colic without showing the characteristic blue line on the gums.

CASE 1.—R. H., aged 23, a male, was admitted into Guy's Hospital with a typical history of acute obstruction of the small intestine of three days' duration.

History.—The illness started at 4 P.M. on Oct. 20th with a sudden agonising pain following on three days of vague discomfort. From this time onwards he had been in continual pain, though not so severe. He had vomited such fluids as he had taken by mouth, and had passed nothing per rectum. Further inquiry showed that he had only vomited after food, and that the vomit had never smelt fæcal.

Examination.—On admission he looked well and comfortable, with a clear complexion, and clean moist tongue. Temperature was 100° F., pulse 88, respirations 20. The abdomen was slightly full, but moved well, and there were no distended coils or visible peristalsis. The abdominal muscles were "on guard," but allowed deep palpation if his attention was distracted. There was no definite tender spot, only a vague tenderness to the left of the umbilicus. On rectal examination masses of scybala were felt, but there was no tenderness whatever and no ballooning.

The findings appeared to contradict the history, and a soap-and-water enema was therefore given, and a half-hourly pulse taken. After the enema he passed a large formed motion, with flatus. The pain was relieved and he went to sleep. Next morning (24th) he woke feeling very well, and his pulse was now 68, temperature 98·4°. There was no pain, and only slight tenderness. He remained like this till midday, Oct. 25th, taking fluids with no vomiting, his temperature remaining normal and pulse below 80. At midday, however, his abdomen was definitely more distended, and he did not look so well, though he felt quite comfortable.

Operation (on the 25th).—Laparotomy through a left paramedian incision. Moderately distended coils of small intestine were seen, and the general peritoneal cavity contained a little blood-stained fluid. On passing the hand downwards a band was felt at the pelvic brim passing from right to left, which snapped while being palpated. A mass was felt in the pelvis and brought into the wound, where it was seen to consist of several coils of intestine matted together and surrounding a loop of the lower ileum about 5 inches long, which was gangrenous and greenish-yellow in colour; 12 inches of bowel were resected and a lateral anastomosis performed. The abdomen was closed without drainage. Following the operation recovery was uneventful, and he was discharged perfectly well on Nov. 28th.

Remarks.

The passage of flatus was probably due to bacterial action on the fairly abundant contents of the large gut distal to the obstruction. The absence of any tenderness probably means that the gut had become absolutely gangrenous just before admission, and the same pathology would account for the cessation of the pain and of the vomiting, which in such cases is at first a reflex act, and only later a back-flow due to obstruction. When the bowel became dead painful and reflex stimuli would cease. Had the patient been examined earlier he would probably have been exquisitely tender per rectum. It is very hard to account for the complete absence of vomiting or of any rise of pulse-rate during the next two days, the fourth and fifth of a complete obstruction in the ileum.

With regard to the operation, the choice lay between resection and drainage of the upper ileum by anastomosis to the transverse colon, end-to-end suture, and lateral anastomosis. The good condition of the upper segment rendered the first procedure unnecessary. End-to-end suture is, I think, the operation of choice when dealing with resection of portions of a perfectly healthy intestine, as in gunshot wounds of the abdomen. It is rapid, and gives an almost perfect anatomical restoration. Where the intestine to be resected is in a less healthy condition as in this case, and the reparative powers reduced, one has to be very careful that no leakage can occur at the junction. If end-to-end suture is done with ample invagination of the suture line, drainage of the upper segment is inadequate at the time, and there is a real risk of a stricture at the line of juncture later. With lateral anastomosis a wide opening can be made, and at the same time the sutured edges can be well turned in; the line of junction is further protected by the surrounding coils of intestine.

Reduction "En Masse" of an Inguinal Hernia: Strangulation in the Reduced Sac Six Months Later.

With regard to Case 2, I can only trace two reports of similar cases, one by G. A. Harrison,[1] the other by W. J. Walsham[2]; the latter reports seven cases in all, but in only one case is it clear that the reduction en masse occurred some time before the strangulation for which operation was performed.

CASE 2.—A man of 73 was admitted into Guy's Hospital on the night of Nov. 23rd, with a history of acute obstruction of two and a half days' duration. He was wearing a double inguinal truss.

History.—He said he had had a left inguinal hernia since a young man, for which he had worn a truss. Following a fall at the age of 45 (28 years ago), the hernia became irreducible, but was replaced by manipulation at St. Thomas's Hospital. During the following years the hernia came down frequently, but was always reduced, though often with considerable difficulty. Finally, six months ago, the left inguinal hernia came down into the scrotum, became fixed, and was very tender. He worked at the swelling himself, applying fomentations, and trying various manipulations, and after two hours of these attempts, it went back suddenly into the abdomen, and had never since appeared.

Three days before admission he felt vague abdominal discomfort, but slept well and passed a normal motion next morning. During midday dinner on the 21st he complained of pains in the epigastrium, and at 5 P.M. he commenced to vomit. Next day the abdominal pain was very acute, and the vomiting continued all that day and the next (the 23rd), when, however, the abdominal pain was easier. From the onset of pain on the 21st till admission nothing was passed per rectum, in spite of two enemas.

Condition on admission.—The patient was a stout, well-built old man, but very collapsed. The pulse was 90; temperature under 95° F. He was vomiting frequently, bringing up a brownish fluid with a fæcal smell. The abdomen was not distended, moved well, and was nowhere tender. Both inguinal and femoral canals were empty and not tender at all. Per rectum there was no ballooning of the walls and no fæcal matter; the prostate was large and hard. In view of the extreme collapse, continual vomiting, and absence of distension an obstruction of the jejunum was diagnosed, the most probable cause, in view of the history, being thought to be a band of omentum adhering to the neck of an old left inguinal sac. He was warmed in bed for an hour and then taken to the theatre and given a spinal anæsthetic, but before any incision could be made he was obviously so collapsed that he was returned to the ward, where he died ten minutes later.

Post-mortem.—A very distended jejunum was traced down to the left iliac region, where at a distance of 36 inches from the duodeno-jejunal flexure it entered a peritoneal ring with very hard edges, easily admitting one finger. The emerging gut was narrow and empty. On stripping back the peritoneum this ring was found to lead to a globular sac the size of a large orange, lying between the peritoneum and the transversalis muscle. No part of the sac was in the inguinal canal, but a prolongation upwards of the tunica vaginalis was intimately blended with the fundus of the sac. On pulling the left testis the fundus of the sac was drawn against the internal ring, and

[1] Brit. Med. Jour., 1917, i., 763.
[2] Ibid., 1901, i., 691.

conversely on pulling the sac the testis was drawn up against the external ring. This serous process was separable from the sac wall and was a distinct structure. On opening the sac it was found to contain a loop of jejunum 9 inches long, which, though inflamed, was neither adherent nor gangrenous. When the intestine was laid open the walls of the upper jejunum were much hypertrophied, and two constrictions in the wall marked the points of entrance and exit of the obstructed loop, suggesting that it had been in the sac for a considerable period and had suffered partial obstruction for some time. In addition the lower ileum was matted by adhesions into a globular mass not attached to parietes, the cæcum was adherent to the right iliac fossa, and the tip of the appendix was lying free in a very small and short right inguinal sac which barely entered the canal.

Remarks.

"Reduction en masse" is frequently described as one of the dangers attending the use of taxis in attempts to return the contents of a strangulated or obstructed hernia into the abdomen. Such "reduction en masse" may be due to replacement of the whole sac and its contents within the abdomen, to displacement of the contents into a lateral diverticulum of the main sac, or to rupture of the sac and replacement of the contents only into the abdomen, leaving the neck of the sac still intact and still causing obstruction or strangulation. Such an accident is nearly always followed by a continuation of the symptoms of intestinal obstruction, leading either to operation or to a fatal result. It must be very rare indeed for reduction en masse to be followed by relief of symptoms, and yet for strangulation to occur at a later period in the sac so displaced. That this is what occurred to this man six months ago when he manipulated his own rupture during an attack of obstruction is, I think, indisputable. The hernia had never been down since, and, as found post mortem, it could not enter the inguinal canal, which would barely admit two fingers. There was no pain or tenderness in the left inguinal region, which seems hard to understand. There is no doubt, however, that had one pulled on the left testis it would have put tension on the sac and caused acute pain, and if a case of this nature were to be seen again it would be a valuable diagnostic sign, and would give one some indication as to where the abdomen should be opened. I intended to make a paraumbilical incision, which in such a fat patient would have needed considerable extension before the point of obstruction could have been reached.

For permission to publish the above cases I am much indebted to Mr. R. P. Rowlands, surgeon to Guy's Hospital.

A NOTE ON

PSYCHOTHERAPY IN GENERAL PRACTICE.[1]

BY W. THOMSON BROWN, *M.C.*, M.B., CH.B. EDIN.

SINCE December, 1919, I have used psychotherapy based on neuro-induction[2] (as opposed to hypnosis or neuro-conduction) in general practice, as far as the requirements of a busy middle- and working-class practice have permitted. I have found it curative in many conditions and also useful in promoting anæsthesia for minor operations, dental extractions, and obstetric cases, as the following instances will show.

I. *Dental Anæsthesia.*

CASE A.—Patient, Mrs. A., has suffered from V.D.H. and auricular fibrillation; also from pyorrhœa alveolaris and dental caries. In March, 1920, I sent her to hospital for extraction of teeth. She fainted in the hospital waiting-room. Her heart was examined and she was recommended for immediate admission. Dental extractions, with or without anæsthetic, were definitely refused as "her heart was too bad." She was told that she might drop dead at any time! She went home and to bed for a week, and feared a sudden death until I disabused her of this notion. On April 24th and 29th I gave her preliminary interviews, suggesting calmness of mind, painless and almost bloodless extractions, and rapid painless healing of the gums, and on the 30th I attended the patient at the dentist's. Twenty-five teeth were extracted in the one sitting. The patient remained placid throughout, except for catching her breath at two specially difficult extractions. When all were out she laughed at the sensation of total absence of teeth. Bleeding stopped immediately, and five minutes later she walked out and left for home. I saw her next day; the gums were very clean, not at all swollen, not at all painful. The minimal pain felt with the two extractions above mentioned amounted to mere discomfort: "I would go through it again any day. I felt I could make a joke of it."

II. *Obstetrics.*

CASE C.—I was called by the nurse to see the patient, Mrs. C., primipara, at 5.50 A.M., on account of her pain, as the nurse had had much difficulty in examining. The patient was slightly deaf (Eustachian catarrh). She allowed me to examine her without fuss. Os not fully dilated, membranes not ruptured. I began induction. The patient complained of "feeling sick." This passed off under suggestion. *After* perfect analgesia was secured I told her it did not matter whether she went to sleep or not, but I suggested that as she had nothing to do she might just as well go to sleep. At 6.15 A.M. the patient was snoring. I left her, promising to return in two hours. At 8.15 A.M. I called again to find the baby had been born at 8.2 A.M., the patient having been perfectly quiet. I expressed the after-birth and left. On my later visit the patient said she remembered relaxation and the pain getting easier and she had heard my talking of going away. She then slept till near the end. She was aware of the last three or four contractions and remembered bearing down for these pains. She described them as violent, but as giving her no sensation of pain. She also felt the head coming out, but had no pain. She had apparently had natural sleep (with, of course, amnesia) for over an hour, analgesia being perfect. The puerperium was normal.

Nervousness in Children.

CASE H.—The parents of this girl, age 10 years, brought her because of her inability to sleep and her troublesome demands on their attention at night. She had defective vision (wore glasses) and had an inherited deformity of pupils. She suffered from visual hallucinations and persisted in "seeing" ghosts, figures on the roof, &c., in spite of parental admonitions to the contrary. She was afraid to be left alone and was frightened of dogs, cats, and mice. Her difficulty in getting off to sleep and her fear of being alone had some relationship with the last phobia. She was impatient, slow to obey, had small powers of attention, and complained frequently of headaches. There being no self-reliance she could not be sent on errands by herself. She was not truthful, and invented complaints to avoid going to school, to escape irksome tasks, or to cover other complaints. She was constipated, and there was marked frequency of micturition at night.

The treatment had in view: (1) training in truthfulness (very important); (2) a rational explanation to the child of her hallucinations; (3) the correction of phobias; (4) the cure of bowel and bladder conditions. I began treatment in the middle of May, 1920, the result being the removal of every symptom complained of. Her school report, July, 1920, states: "..... was hindered by *illness* at the beginning of this term, but she has worked hard during the past six weeks and has gained a much higher place in the class; last March she was near the bottom of the list." That this is not "forcing" but a mere release of mental activity is seen from her mother's statement five months later (October): "Everybody says how different and how well she looks." "A different girl about the house—not the worry she used to be. Is a happy girl now; sleeps well at night. No trouble in any way."

Remarks.

Psychotherapy is still carefully avoided by most general practitioners, partly from a belief that it is too elusive and too far-fetched a subject for the plain man, partly because of its popular association with quackery or with the transcendental psychopathology of the psycho-analysts, and partly from a well-grounded opinion that pecuniary loss or financial ruin would ensue from the use of so-called "hypnotism" in general practice. I wish to emphasise that psychotherapy need have nothing whatever to do with any of these associations and that *anyone* can practise it who cares to acquire the requisite knowledge and learn the technique, qualified medical men only being properly and safely equipped.

[1] These cases are selected from among those shown to the Walthamstow and District Clinical Society, Nov. 2nd, 1920.

[2] Haydn Brown: Advanced Suggestion, 1918.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF

LEUKÆMIC POLYNEURITIS.

BY WILFRED HARRIS, M.D. CANTAB., F.R.C.P. LOND.,
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SEVERE forms of anæmia, cachexia, and senility have been stated occasionally to produce definite multiple neuritis, though the occurrence of well-marked polyneuritis in lymphatic leukæmia has not, so far as I can ascertain, hitherto been recorded. In hæmophilia neuritis has been ascribed to the pressure of the effused blood on nerve trunks, but the resultant neuritis would be local, asymmetrical, and quite unlike the usual form of toxic polyneuritis. Similarly, unilateral facial paralysis has been described in leukæmia.

The case described below illustrates symmetrical polyneuritis as an early and prominent symptom in a case of lymphatic leukæmia, before the definite diagnosis of the blood condition was possible to establish.

W. J., a youth aged 17, attended the out-patient department early in April, 1920, on account of weakness of the legs, saying that for the past five weeks he had noticed that his legs were becoming stiff, followed two weeks later by unsteadiness on his feet, and numbness and tingling of his finger pads. The spleen was noticed to be definitely enlarged, about three fingers-breadth below the costal margin, and the notch easily felt. A slight degree of anæmia was evident, and he was sent into the hospital, being admitted on April 15th. His gait was weak and unsteady, and there was definite weakness of dorsiflexion of the feet, the electrical reaction of the leg muscles showing partial reaction of degeneration. Tests of sensation showed diminution to touch and pin-prick on the feet and legs up to the knees, though the vibration sensation to a large tuning-fork placed on the tibiæ was normal. The knee-jerks, Achilles, and forearm-jerks were all absent, nor could any plantar reflexes be obtained, though the cremaster reflexes were present. Sphincters normal; eyes and discs normal. The blood examination showed a red cell count of 3,400,000, with hæmoglobin content 60 per cent., the colour index being 0·88. There was a degree of leucopenia, the white cells numbering only 5800, though the differential count showed the polymorphs to be reduced to 23 per cent., the lymphocytes amounting to 68 per cent. Wassermann test negative. Numerous small lymphatic glands soon became palpable in the posterior triangles on both sides of his neck, and one of these was removed for microscopical examination. The healing of this wound was very troublesome, recurrent hæmorrhage occurring for several days, and his temperature, which previously had been normal, now began to show oscillations, with rises to 99·5° to 100° F. Gradually he became weaker, and he died on May 29th. Post mortem, the spleen was found considerably enlarged and soft, the liver fatty and weighing 74 oz., while microscopical examination revealed leukæmic infiltration of the liver, nerves, and kidneys, with lymphocytes.

Remarks.

The diagnosis of the case on admission presented a pretty problem. Splenic anæmia with combined sclerosis was negatived by the fact of the absent reflexes, normal vibration sense on the legs, with no involvement of the sphincters, while the clinical picture was indeed characteristic of polyneuritis. The recognition of the type of anæmia was more difficult, the leucopenia being suggestive of splenic anæmia, but the greatly inverted lymphocytic preponderance was against this diagnosis, and was more suggestive of lymphatic leukæmia or lymphadenoma. One of the slightly enlarged glands was therefore excised for microscopical examination, but the pathological report was that it was normal, and again we were at fault. The troublesome hæmorrhage from the small wound in the neck made by the surgeon was more suggestive of leukæmia than of lymphadenoma, but the diagnosis of leukæmia was not established until the tissues were microscoped after the post mortem. The extremely rare combination of well-marked polyneuritis with leukæmia makes it desirable to place this case on record. What exactly is the association between the two conditions is perhaps hard to say. The symmetry of the polyneuritis and its resemblance to many forms of toxic polyneuritis preclude the possibility of the neuritis being due to leukæmic infiltration of the nerves producing paralysis by pressure on the nerve fibres. Clearly it was an instance of toxic degeneration of the peripheral nerves, though, as in so many unexplained forms of "toxic polyneuritis," the source and nature of the toxin remain obscure.

A CASE OF

OPHTHALMIA NEONATORUM BEFORE BIRTH

BY GRACE H. GIFFEN DUNDAS, F.R.C.S. IREL., D.P.H. CANTAB.,
MEDICAL OFFICER TO MATERNITY AND CHILD WELFARE, MIDDLESBROUGH.

Mrs. X., a 2-para, was admitted to the Municipal Maternity Home, Middlesbrough, on Oct. 6th, 1920. Labour pains had commenced ten hours previously. The child was born two hours after the mother was admitted. I saw it within five minutes of its birth, when it was found to have ophthalmia neonatorum. The lids were red and œdematous, and pus was discharging from both eyes. The obstetric sister who conducted the delivery reported the case as left occipito-anterior.

The following history was obtained from the mother:—

Her first child was born healthy; a "creamy discharge" commenced before the second pregnancy and continued during the pregnancy; a fortnight before labour pains set in "the waters began to come away, dribbling all the time," so that the patient was "never dry." The case was evidently one of intra-uterine infection made possible by the draining away of the liquor amnii, and presumably the presentation had been a brow converted into an occipital during labour. Labour pains only lasted 12 hours, but the brow must have been in contact with the infected cervix for some time previous to the commencement of the pains. The mother's puerperium was normal, and she left the home at the end of a fortnight to be treated by her own doctor. The child's eyes received the usual treatment, including hourly saline irrigation, and the discharge began to clear up; intracellular diplococci were demonstrated in the pus. Apart from the eyes the child seemed healthy at birth and weighed 6 lb. 12 oz., but on the third day it began to refuse its feeds, and was slightly cyanosed. The cry was feeble; twitching of the facial muscles occurred several times; the power to suck gradually disappeared, whereupon the child was spoon-fed with the mother's milk. The temperature remained subnormal; the child gradually became more feeble and more cyanosed, and died on the tenth day.

Within 18 hours of the death I received permission to do a limited post-mortem. On removing the calvareum extreme intracranial congestion was found. The sinuses were full of fluid blood, and injection of the pia mater was intense. When the brain was removed a purulent exudate was found on the middle of the base of the skull extending from the optic commissure backwards. There was no disintegration of the globe of either eye. The secondary condition was evidently due to infection by blood or lymph stream.

A CASE OF

AMŒBIC DYSENTERY IN A BOY AGED THREE.

BY M. L. YOUNG, M.B., B.CH. CANTAB.,
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THE age of the patient and the absence of any obvious source of infection are noteworthy features of this case.

Stanley K., aged 3 years, was admitted to the Paddington Green Children's Hospital on Nov. 3rd, 1920, with the following history. During the six weeks prior to admission he had suffered from persistent diarrhœa, sometimes passing as many as seven stools in the 24 hours, and during the latter four weeks streaks of bright red blood and some slime had been noticed by the mother in almost every stool. Throughout this period of six weeks the boy had been bright and happy, and there had been no complaint of pain or discomfort.

When admitted to the hospital he looked a perfectly healthy and unusually high-spirited boy. During the first 24 hours four loose stools were passed containing a large amount of mucus, well streaked with bright red blood, but very little fæcal matter. Laboratory examination of a stool revealed the presence of the *Entamœba histolytica*, much blood and mucus, and a relatively small amount of pus; no dysentery bacilli were found.

It was then decided to proceed with a course of emetine hydrochloride by hypodermic injectton: 1/12th gr. was given on the first occasion, and during the following 24 hours one loose stool was passed containing much mucus but less blood. A second injection of 1/6 gr. was then given, and resulted in further improvement. Two more injections of 1/6th gr. at intervals of 24 hours were given, and a semi-solid partially formed stool was examined and found to contain a considerable quantity of mucus, a few red blood cells, and

one or two amœbæ. At this time the diarrhœa was entirely checked. After two further injections of 1/6th gr., at intervals of 24 hours, the child was constipated. Examination of a stool revealed no blood, no amœbæ, and no cysts.

The child was kept under observation in the hospital for another fortnight, and then discharged apparently completely cured. At no time during his stay in hospital did the child appear in the least unwell. The father has never been out of England, and no source of infection has been established. As this is the only case of amœbic dysentery which has been detected at the hospital since the war, it would be interesting to learn the experience of other children's hospitals.

I am indebted to Dr. G. A. Sutherland for permission to publish the case.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF SURGERY.

A Further Series of 500 Goitre Operations.

A MEETING of this section of the Royal Society of Medicine was held on Jan. 5th, Mr. W. G. SPENCER, the President, being in the chair, when Mr. JAMES BERRY contributed a paper on a Further Series of 500 Goitre Operations, with special reference to the after-results. Numerous charts were exhibited showing the age and sex incidence, the type of tumour, reasons for operation, the lobes affected, the after-results, &c. Many patients were present and a large number of pathological specimens were on view. On the epidiascope were shown photographs of patients, and photographs and coloured drawings of the tumours which had been removed. Of the 500 cases all but 14 had been traced, and Mr. Berry said that from a study of these 14 cases he had no reason to suppose that the after-results were anything but satisfactory. He commented upon the comparatively large number (7 out of 63 men) of men over 70 years of age in his series; there were no women over 70. A large proportion of his cases were women, and this he attributed to the fact that men sought operation only when the tumour was causing discomfort or when it was so enormously large as to produce inconvenience or such unsightliness as would prevent them from getting employment. Women, on the other hand, often came largely for operation for cosmetic reasons, the goitre being usually more in evidence with them than was the case with men.

With regard to the immediate reason for operation, in more than half of the cases of this series (274) operation was performed for dyspnœa. He was anxious to hear opinions as to the suitability of intra-tracheal ether as a mode of anæsthesia for operations of this kind. He urged the importance of the anæsthetic in goitre operations, and said that he never used chloroform but nearly always very light open ether. The intra-tracheal method always seemed to him to be dangerous for just those operations where he would like to use it—namely, cases of extreme dyspnœa with very narrow trachea. So far he had not ventured to try it with goitre operations of this class. In these patients the trachea was so narrowed from pressure by the tumour that its lumen was a mere chink. The deep anæsthesia and extreme extension of the head, both of which appeared to be necessary for the introduction of the tube in intra-tracheal anæsthesia, he thought most dangerous in goitres with extreme suffocative dyspnœa. The pressure of a tube, however soft, in the trachea in contact with the delicate lining of the already narrow trachea, seemed to him not unlikely to produce a dangerous post-operative swelling. For these reasons he had never employed it. On the other hand, it might safely be employed in the less severe cases, but here there seemed no particular advantage in it.

With regard to malignant growths, he urged very strongly that operation should never be performed unless the thyroid not only moved up and down with the trachea, but was also movable *on* the trachea. He had come across cases where this point had been overlooked and the results had been most disastrous. The patient would probably live only a few weeks after the operation. He also urged on those who were thinking of taking up the surgery of the thyroid gland the importance of a sound and extensive knowledge of its pathological anatomy. The hundreds of specimens in the London museums gave those who lived in London ample opportunity for study.

Mr. Berry demonstrated his method of removing an intrathoracic tumour. Having cleared the tumour around the base of the neck, he levers it up by means of a spoon about the size of a dessert-spoon bent to an angle and thrust through the thoracic inlet and beneath the tumour. At the same time the tumour is pulled from above by means of forceps. Removal of intrathoracic goitres was rendered possible by the fact that, in growing downwards, they carried their vessels with them. In the case of intrathoracic tumours he usually employed light general anæsthesia. If local anæsthesia only were used the patient was apt to move at the most dangerous time—when the tumour was being pulled out of the thorax. Nevertheless, there were certain cases where local anæsthesia alone might be advisable.

Mr. Berry said that he nearly always drained by means of a short glass tube reaching just below the infra-hyoid muscles. This was practically always removed within 24 hours. Of the two deaths which occurred among patients with simple goitre, one was a lady of 38 who had glycosuria. She died of pneumonia ten days after the operation without gross evidence of sepsis. The other case was that of a pregnant woman of 41, on whom the operation was performed on account of dyspnœa. There were 78 patients who had had operation for true exophthalmic goitre (one being operated upon twice) with three deaths, all of which were due to heart failure within a few hours. Among the cases shown was a professional singer, who consulted Mr. Berry because she was losing her voice and thus her means of livelihood. After operation she had regained her voice completely. She demonstrated to the meeting her ability to sing sustained notes.

Discussion and Reply.

In the course of the discussion Sir STCLAIR THOMSON suggested that the word "stridor" should be used instead of "dyspnœa." Stridor was an objective symptom, but dyspnœa was a subjective symptom. In his opinion there were three conditions of stridor which demanded operation—stridor when at rest, stridor when asleep, and stridor on exertion. Fixation of the vocal cord was also an indication for operation, and recovery sometimes followed successful operative treatment. Paralysis of the vocal cord was rarely due to cutting of the recurrent laryngeal nerve. Voice change often came on some weeks after operation, and was probably due to slight suppuration and fibrosis.

Mr. A. J. WALTON gave his opinion as to the indications for operation. Operation should be performed on well-defined adenomata, but if the adenoma was soft and ill-defined, immediate operation was not necessary and the condition often improved under medical treatment. When a goitre was complicated by pregnancy he would always postpone operation until the pregnancy was over, unless the tumour was enormous. In "parenchymatous" goitre there was not a true increase of parenchyma, but much increase of colloid. He preferred to call this type "colloid goitre." Apart from dyspnœa, no colloid goitre should be operated upon, as the condition usually disappeared. Operation should be performed in cases of extreme dyspnœa. He said that cases sometimes occurred in which atrophy of cartilage was so great that tracheotomy had to be performed after thyroidectomy. He considered that operation was *the* treatment for exophthalmic goitre of longer standing than about six months. He had never seen any permanent benefit from X rays in this condition. He had had 11 cases in which prolonged X ray treatment had been carried out elsewhere. Two of these had squamous carcinoma, and there was much scarring in the other cases. None appeared to have benefited. In relapsing cases X ray treatment also appeared to be unsuccessful.

Mr. BERRY said that he only knew of three cases of paralysis of the vocal cord in this series, though there might be others. He thought that X rays had a definite field of usefulness in the cases of early and mild exophthalmic goitre, but it was wrong to continue treatment too long. He had seen cases of mild exophthalmic goitre which had certainly benefited. In answer to a question by the PRESIDENT, Mr. Berry said that he paid no attention whatever to the parathyroid glands. He must have removed them many times, but none of his patients had at any time developed tetany.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

MEDICAL SECTION.

A Case of Bubonic Plague in Dublin.

AT a meeting of this section on Dec. 10th, 1920, Dr. H. C. DRURY and Sir ARTHUR BALL reported a case of Bubonic Plague which had occurred in Dublin. The woman, aged 25, was seen by Sir Arthur Ball, who found a gland in the groin the size of a walnut, with a history of intense local pain of three days' duration. On admission her temperature was 104° F. The skin over the gland was not inflamed. The patient was covered with flea-bites. The excised gland was examined by Dr. V. M. Synge who found that it contained large numbers of plague bacilli. When Dr. Drury first saw the case on the third morning after operation, he was struck with her typhus-like aspect. The temperature was then 102°, pulse-rate 100 but very weak, respirations 22. Except for a deep and exquisitely tender swelling, 2½ by 1 in. immediately above and parallel to Poupart's ligament, the abdomen was normal. There was no vesicle or pustule to indicate the site of inoculation. On the sixth day of the disease the temperature began to fall steadily, rising again on the eleventh day to 102°, and becoming definitely normal on the thirteenth day. The swelling above Poupart's ligament gradually subsided.

Discussion.

Dr. J. W. BIGGER, in describing the precautions taken by the authorities to prevent extension of the disease, said that as no case had occurred in Dublin for 200 years an entirely new problem was presented. Some connexion with the shipping of the port might have been expected, but this case had none, except that she lived near the docks. She had, however, a pet cat which slept in her bed and which was in the habit of disappearing at intervals. This animal might have been infected by rat fleas, but it was not possible to ascertain the fact owing to its prompt destruction by the sanitary authorities. No unusual mortality had been noticed among the rats at the docks, and the specimens examined were negative as regards plague. The usual measures of disinfection were adopted, and the health authorities in England and Scotland were notified. As no further case had been reported after the lapse of nearly two months this would probably prove an isolated case.

Dr. W. F. LAW had never seen a case of plague in his colony (B. Guiana), but it had occurred in Trinidad on two occasions to his own knowledge. He was surprised to hear that direct infection played such a prominent part; he thought the rat flea was generally accepted as the infecting agent.

Sir J. W. MOORE thought the introduction of plague into this country quite a possible event. A relative in the Royal Navy had told him on his return home after visiting Algiers and Lisbon that plague existed in Algiers and in Lisbon, both places in fairly close communication with the British Isles.

Dr. J. SPEARES instanced an outbreak in a family in Malta, two members of which died before the diagnosis was made. The laboratory attendant punctured his finger during an autopsy on one of the cases, developed plague, and died.

Dr. SYNGE said that the gland removed by Sir Arthur Ball was about 1½ inches in length. It was œdematous and hæmorrhagic. Smears from the gland showed very large numbers of Gram-negative bacilli. These bacilli were short and thick, and stained darkly at both poles, the centre of the bacillus remaining unstained. Cultures on blood-agar after 36 hours showed small whitish-grey colonies. These consisted of bacilli similar to those found in the direct smears of the gland. Cultures on salt agar after three days showed marked involution forms. A guinea-pig injected with material from the gland died after seven days. It showed general œdema with areas of congestion. The glands in the groin were much enlarged, œdematous, and hæmorrhagic. The spleen was greatly enlarged and studded with large numbers of white spots. Smears of the glands and spleen, and cultures from the glands, spleen, and heart's blood all showed bacilli similar to those found in the patient's gland. A culture from the patient's blood on the seventh day of her illness was positive, but bacilli were not seen in a direct examination of blood films. The morphological and cultural appearances and the result of animal inoculation proved that the bacillus found in the patient's gland was *B. pestis*, and that the patient was suffering from bubonic plague.

Dr. DRURY, in reply, said that the entire credit of the case was due to Sir Arthur Ball, who recognised the inflamed gland as something unusual, and to Dr. Synge, who had the courage to make what appeared at first a very improbable diagnosis. He did not suggest that direct infection in plague was a common route, but it had been shown to occur. He thought anti plague serum more useful in prophylaxis than in treatment.

Acute Leukæmia.

Dr. F. C. PURSER showed blood films of Acute Leukæmia. The child, a male, aged 3 years 2 months, was admitted as a case of acute purpura with temperature of 103 and pulse 138, and died 36 hours after admission. The blood showed 72,812 leucocytes per cubic centimetre of mononuclear type. Hæmoglobin 50 per cent., red cells 2,800,000.

Dr. SPEARES commented on the bluish appearance of the red cells in the films prepared with Leishman's stain, and said this was generally due either to the films having been kept a long time before staining or to the stain not being sufficiently alkaline. On account of the peculiar staining, he found it difficult to pronounce on the character of the white cells, but he considered that the majority were myelocytes, myeloblasts, or metamyelocytes. He thought the case undoubtedly belonged to the myelogenous variety of leukæmia.

Dr. G. E. NESBITT, having seen the case on its admission to hospital, was much interested in the subsequent details. He was struck by the peculiar pallor, the petechial eruption, and the blood-stained oozing from the mouth, which had been present in some form in every case of acute leukæmia he had seen. He thought a bluish tint in the red cells was a common experience, and he did not find that it prevented recognition of the leucocytes, which often seemed to stain unusually well under these conditions. The patient was an exceptionally fine child, and the sudden occurrence of such a profound and mysterious disorder was quite inexplicable.

Dr. R. J. ROWLETTE also often obtained a grey appearance of the red cells with Leishman's stain, but as regards the white he would judge more from their morphology. He thought the blood did not conform to either established type, but as usual in acute cases the cells more closely resembled the large lymphocytes, and this appearance was characteristic of the condition.

Dr. PURSER, in reply, said that Dr. J. H. Pollock had been responsible for most of the work on the case. He agreed that bleeding from the gums was a characteristic feature of acute forms of leukæmia. The stain used was probably bad, but he thought it likely that the alcohol was to blame.

OBSTETRICAL SECTION.

A MEETING of this section was held on Dec. 10th, Dr. E. HASTINGS TWEEDY, the President, in the chair.

Dr. BETHEL SOLOMONS read a paper on

Herpes as a Type of Vicarious Menstruation.

He reported a case which had been referred to him by Dr. Wallace Beatty. The patient was a girl, aged 27,

who complained of getting a sore on her left cheek every month, which Dr. Beatty described as catarrhal herpes. Bimanual examination under anæsthetic revealed absence of the essential genitalia. It was thought well to confirm this diagnosis, and the abdomen was opened. It was then seen that a candle-like structure passed from one internal abdominal ring to the other, and that the uterus, tubes, and ovaries were absent. On a further search an ovary of normal size was found attached to a very thin fold of peritoneum, which was in such a position that it might have been intended to represent the broad ligament. The ovary was anterior to this. There was no ovarian or ovario-pelvic ligament, and the ovary was obviously obtaining its blood-supply from the peritoneum in which it was nestling. Dr. Solomons, having discussed the question, considered that the case might be ranked as one of vicarious menstruation.

Dr. SPENCER SHEILL said that he agreed with many present-day authorities that vicarious menstruation does not exist. In cases of pink discharge coming monthly from axillæ neither red cells nor hæmatin were found in it. He looked upon herpes as a very common accompaniment of menstruation, just as headaches, swellings, &c., are. These symptoms increase in menstrual derangements, and are merely manifestations of vaso-motor disturbance due to internal ovarian secretion. When periodical hæmorrhages occur—e.g., epistaxis—local causes have invariably been found which, when treated, removed the so-called vicarious menstruation.

Dr. DAVID MADILL asked if any form of pluriglandular extract had been tried in this case.

Mr. A. K. HENRY said that menstruation involved notable vaso-motor changes, and these were controlled by the autonomic nervous system which, taken as a whole, was concerned with widespread reactions. Dermographism, for example, was described as being specially pronounced in certain individuals during menstruation, and it was possible to account for this, and for catamenial herpetic eruptions, by a diffusion of exaggerated vaso-dilator response; or, as in Dr. Solomons's case, by a complete shunting of vaso-motor effects into extra-genital channels. In dermographism urticaria was simulated, while in herpes the results of vaso-motor activity proceeded to the formation of vesicles.

Dr. SOLOMONS, in reply, said that he was one of those who believed that vicarious menstruation did exist. It was open to question as to whether his case was actually an example of the condition. According to Dorland's definition it certainly was. All drug treatments had been tried, and still the herpes recurred every month. He did not remove the ovary, as he thought the absence of its secretion would be more harmful to the girl than the presence of the herpes.

Dr. R. A. MACLAVERTY gave an account of some observations made during a recent American tour.

ULSTER MEDICAL SOCIETY.

A MEETING of this society was held on Jan. 6th, Dr. T. HOUSTON, the President, in the chair.

Hæmaturia: Surgical Aspect.

Mr. A. FULLERTON introduced a discussion on this subject, basing his remarks upon a series of 600 cases, illustrated by lantern demonstrations. The cystoscope, combined in many cases with radiography, was indispensable for the examination of hæmorrhage from kidney, ureter, bladder, or prostate, and the urethroscope for doubtful cases of ureteral hæmorrhage. Its indiscriminate use should, however, be discouraged, as it might prove a dangerous weapon in certain cases of tubercle, malignant disease, sepsis, and incipient or established uræmia. The ordinary methods of examination should first be employed, the cystoscope being used when required. When blood is intimately mixed with the urine it was probable that the source of the hæmorrhage was the kidney, but the rule was not absolute. All that could be said in such cases was that the blood had been shed in small or moderate quantity, allowing of intimate admixture before clotting had taken place. The presence of frequency of micturition was strongly suggestive of the bladder or prostate as the source of the hæmorrhage, but dependence could not be placed upon this rule. Frequency of bleeding in an old man would at once suggest enlarged prostate, but might depend upon papilloma of the bladder or other conditions. When frequency of urination and hæmaturia were combined with pain in the glans penis, scalding, urgency, and the presence of pus and mucus, cystitis was probable, but malignant growths and calculus must be excluded by direct examination. Pain in one lumbar region was sometimes present when the disease was in the opposite side. Initial hæmorrhage pointed to the prostate or the urethra as the seat of the bleeding. Blood issuing from the urethra independent of micturition came from a source distal to the compressor urethra. Hæmaturia with massive clotting was often of bladder origin, but might depend upon wounds or tumours of the kidney. A long cast of the ureter pointed to its origin. Casts formed in the urethra were thicker and often showed constrictions corresponding to those normally present in the canal. Microscopical examination of the urine might give useful information by showing the presence of renal casts, cells from the bladder, ureter, or kidney, portions of tumour, pus cells, crystals, micro-organism, &c. Mr. Fullerton then analysed his own cases as follows:—

Tubercle of the kidney.—Tuberculosis of the urinary tract was common in the North of Ireland, nearly 10 per cent. of his cases of cystoscopy belonging to this category, of which 75 per cent. had hæmaturia. Tuberculosis of the urinary tract usually began in the kidney and was very rarely, if ever, primary in the bladder. The blood usually came from ulcers in the bladder, severe hæmaturia from the kidney being rare.

Symptomless renal hæmaturia.—He had seen 47 cases of renal hæmaturia in which it was the only symptom, the "renal epistaxis" of Gull. The hæmorrhage had been more or less severe and persistent, with intervals of freedom when the urine was normal. The bleeding was unilateral. The patient was otherwise in fair or good health, and the hæmaturia might persist for years without any serious results. Various hypotheses had been put forward with regard to these cases, but the real cause or causes remained obscure. He had seen 44 cases of renal calculus with hæmaturia. Renal colic, hæmaturia, and vomiting were common, but not invariable, in cases of renal calculus. At the present time he would be reluctant to operate without an X ray examination. The symptoms of renal calculus might be closely simulated by tuberculosis of the kidney, new growths, hydronephrosis, the presence of an accessory renal artery, pyonephrosis, hydatid cysts, and ureteral spasm. The most usual cause of pyelitis was the presence of the *B. coli communis*, but streptococci, staphylococci, the *Diplococcus fæcalis*, diphtheroid bacilli, and other organisms might occur. The amount of blood was usually small. Every case of pyelitis should be X rayed. He had seen a patient treated for months by vaccines when the exciting cause proved to be a stone in the pelvis of the kidney.

Renal tumours and cysts.—This group included 21 cases. In congenital cystic kidney the bleeding might be profuse. As this type of tumour was bilateral it was useless to remove one kidney. In some cases of renal tumour the bleeding was very profuse. It might be painless or associated with symptoms of renal colic. He was not sure that every case of renal hæmaturia of doubtful origin should not be explored so as to avoid missing early cases of malignant disease. The appearance of a tumour in the side showed that the disease was in an advanced stage. Radiography might be useful in these cases. Nephritis belonged to the sphere of the physician. Their chief feature, from the cystoscopic point of view, was the presence of blood on both sides. Other signs or symptoms of renal disease, such as the presence of casts in the urine, cardio-vascular changes, albuminuric retinitis, would be found on examination. Hæmaturia was not a cardinal sign of hydronephrosis, but was often present. The chief signs of hydronephrosis were pain, sometimes developing into renal colic with vomiting, a tumour in the lumbar region varying in size from time to time and sometimes disappearing. In 4 cases of pyonephrosis, in 3 of movable kidney, in 2 of horse-shoe kidney, in 2 of oxaluria and in 1 of Henoch's purpura hæmaturia was present; with accessory renal artery hæmaturia was occasionally present. In 9 cases hæmaturia was due to urethral calculus. There were 113 cases of cystitis in which hæmaturia was present, the hæmorrhage in all cases being moderate and often found only on microscopical examination. When visible it was usually of the terminal type. There were 72 cases of tumours of the bladder, in most of which the bleeding was severe and associated with the formation of massive clots in the

bladder. In some cases, however, the hæmorrhage was trifling. In 34 cases of vesical calculus hæmaturia was present, the hæmorrhage varying from a microscopical to a moderate amount. The signs of stone in the bladder were sometimes obscure and the calculus was sometimes only accidentally discovered. The usual causes of ulceration of the bladder were tubercle and malignant disease. Superficial ulceration sometimes occurred in cystitis.

Bilharzia hæmatobia.—Two of these cases were included in the series. Hæmorrhage in cases of enlarged prostate was sometimes severe. Two cases of papillomata of the urethra were included.

The underlying cause suggested the right treatment.

Medical Aspect.

Professor J. A. LINDSAY dealt with the subject from the medical point of view. Hæmaturia lay on the borderland of medicine and surgery, and while a large proportion of these cases rightly reverted to the surgeon, some belonged to the physician, who was often the first to see the patient. Omitting bladder, prostate, and urethral cases, hæmaturia might be divided into three groups.

In the first group diagnosis was more or less obvious. This group included hæmaturia from poisons—turpentine, cantharides, carbolic acid, &c.—cases connected with the infective fevers, cases depending upon general diseases, such as scurvy, purpura, hæmophilia, leukæmia; cases associated with heart disease. Where hæmaturia was a feature of heart disease inquiry should be made for ulcerative endocarditis. In the second group diagnosis, if not obvious, presented little difficulty. To this group belonged such conditions as granular kidney and oxaluria. A sharp hæmorrhage might be the first symptom to attract attention in granular kidney, but corroborative signs and symptoms would always be found upon examination. In the third group diagnosis often presented serious difficulty. To this group belonged tuberculosis of the kidney, calculus, and new growths. The examination of the urine was often indecisive, but the presence of renal casts, shreds of tumour, crystals, or micro-organisms might give the requisite clue. The cystoscope was of paramount importance, but Mr. Fullerton had given useful cautions as regards its indiscriminate use. Radiography was often of service, especially in the cases of calculus. Tuberculosis of the kidney was common, but was rarely primary. The diagnosis might present great difficulty. Early polyuria might occur, and later the presence of blood and pus and tubercle bacilli in the urine. Albuminuria might be present. The constitutional symptoms might be slight and the general health well maintained. The course of these cases was very variable, and remedies might get the credit which was really due to nature. There was much difference of opinion regarding the value of tuberculin. In certain cases operation was indicated. Calculus was not common in the North of Ireland. The usual type was oxalate of lime. Renal colic and hæmaturia were common, but might both be absent. Cystoscopy might show a unilateral diuresis and diminished specific gravity of the urine on one side. Radiography was of essential service. The early diagnosis of new growths in the kidney was of cardinal importance in view of the value of early operation. A sharp hæmorrhage with little pain, recurring at intervals, was often the earliest sign. The constitutional symptoms might be slight. A dull aching pain in one loin might appear early, but when a definite tumour was recognisable the case was already advanced. These cases should be explored, as their distinction from the cases known as "symptomless renal hæmaturia" might be difficult.

The treatment of hæmaturia depended upon cause. Only rarely was symptomatic treatment justifiable. There was no trustworthy astringent in renal hæmorrhage. Opium and calcium salts might be tried, but their value was doubtful.

In the subsequent discussion the following members took part: Dr. JOHN CAMPBELL, Dr. R. W. LESLIE, Dr. W. CALWELL, Dr. J. E. MACILWAINE, Mr. S. T. IRWIN, and the PRESIDENT.—Mr. FULLERTON replied.

LIVERPOOL MEDICAL INSTITUTION.

A MEETING was held on Jan. 6th, with Dr. J. E. GEMMELL, the President, in the chair, when Dr. C. J. MACALISTER read a short paper on

Left-handedness and Conditions Associated Therewith.

After referring to some of the theories concerning the hereditary explanations of right-handedness and left-handedness and the statistics concerning the proportionate incidence of the latter as compared with the former, he indicated that he did not wish it to be suggested that every case of left-handedness was liable to the functional disorders or ataxias to which he directs attention. By far the greatest number of left-handed people are perfectly normal physiologically, but he particularly referred to certain abnormalities which he felt sure depended upon transposed function. He showed a case of a left-handed girl, aged 13½, who was practically aphasic, whose language was one of signs and gesticulations resembling those natural ones used by the deaf. She had a fair amount of intelligence and a wonderful memory, her backwardness depending, to a certain extent, upon simple lack of education. She was being taught to sign and to read and write by the methods adopted among deaf-mutes.

He laid great stress upon ancestral and collateral history as bearing upon the question, and instanced cases of left-handed stammerers having left-handed relations and of right-handed stammerers also having a left-handed ancestral history. He suggested that in these cases of marked incoördinations occurring in the left-handed the right speech centre might be unbalanced by some unusual development of function of the left one, thus giving rise to a confusion of coördination. The same principle might apply to cases of chronic hemichorea. Having noted that although transposition of the viscera might be thought to be associated with left-handedness, this is not constantly the case, there being a good many records of this condition where there has been right-handedness.

He next emphasised the fact that a certain number of left-handed people have left speech centres, proved by those cases of cerebral hæmorrhage affecting the right speech motor area where there was no aphasia. He quoted cases described by Dr. Foster Kennedy in the *American Journal of Medical Sciences*, where injuries involving the right Brocal areas in left-handed people had not been associated with defects of speech, and another series of cases of right-handed people where involvements of the right Brocal areas had been associated with aphasia. The lesson derived from Dr. Kennedy's paper was that where there is a known hereditary or collateral history of left-handedness the speech centres appear to have been transposed, whereas in a number of cases of which no such history had been discovered transposition had not taken place. Dr. Macalister expressed his opinion that there might be a Mendelian explanation of this, and that the occasional incomplete cases as well as the complete ones might be the result of hybrid marriages.

Dr. DINGWALL FORDYCE read a paper on

Thyroid Function in Sick Children and its Influence on Treatment.

He stated that thyroid enlargement is a common phenomenon in the locality of Liverpool. He considered that there is reason for connecting gastro-intestinal disorder with this cause and for expecting general lymphatic hyperplasia as a concomitant. This general condition is associated with symptoms markedly anaphylactic in nature. The clinical examples which he described varied markedly in intensity of symptoms and according to age.

ASSURANCE MEDICAL SOCIETY.

AT a meeting of the society held on Nov. 3rd, 1920, the President, Dr. T. D. LISTER, being in the chair, Dr. R. HINGSTON FOX opened a discussion on

Albuminuria in Relation to Life Assurance, especially in Adolescents,

by reading a paper which appears in full amongst our original articles this week.

The PRESIDENT said that Dr. Fox had thrown out a challenge to the physiologist and pathologist, to the physician and to the Assurance Medical Society, which he hoped they would take up.

Dr. OGIER WARD added a few facts of his own observation. In his last 1400 cases he found albumin present in 68, a percentage of 4·9. Of the 1010 cases

over 30 albumin was present in 35, a percentage of 3·4. Of the 390 cases under 30 years of age albumin was present in 33, a percentage of 8·5. Of these 33 under 30 years of age 19 had nothing else against them, even in family history, beyond build, nerves, or bad teeth. He was now convinced that those 19 cases might one and all have been accepted at ordinary rates. That was tantamount to saying that where neither family history nor physical examination shows any of the other defects which called for extra rating the mere presence of albumin in an applicant well under 30 might be passed over as of no account.

Dr. HUGH MACLEAN said that the question of albuminuria had always been a difficult one. One came across numbers of cases undoubtedly in which there was no reason whatever to believe that the condition had any detrimental effect on the kidney, or, in other words, that the kidney was more liable to subsequent nephritis than was a normal kidney. It would be a great help if any tests could be carried out giving even a hint as to the causation of the condition. The relationship of the albumin to the globulin had been suggested as of value; also the presence of globulin, as indicated by the addition of 30 per cent. solution of acetic acid to the urine. Should a precipitate form, the presence was assumed of something which was called globulin, and it had been stated that this result with acetic acid was much more frequent in cases of physiological albuminuria than in albuminuria caused by nephritis. He had examined 60–70,000 cases of albuminuria in soldiers, testing all the urines of the first 10,000 that had a fair amount of protein with acetic acid; in only two or three cases was there any precipitate at all, and there were obviously many cases of undoubted functional albuminuria in which there was no acetic acid reaction. He also carried out the diastatic reaction in nearly all the albuminous urines from the first 10,000 cases, and the results were normal. To determine the relation of albumin and globulin was not within practical politics for an ordinary examination. There seemed to be some association between the presence of calcium oxalate crystals and albuminuria, and large numbers of such crystals might suggest that the condition was not pathological in the ordinary sense of the word. The significance of the cast was a difficult question. The presence of a few epithelial casts, he thought, justified the assumption of a definite kidney lesion which might or might not go on to nephritis. In a case in which it was difficult to say from the symptoms what the albuminuria amounted to, the urea concentration test might afford a good deal of help. It was exceedingly simple; the patient was given 15 g. of urea and asked to empty his bladder beforehand and again one hour afterwards, the amount of urea in the urine being estimated.

Dr. R. L. MACKENZIE WALLIS said that in examining a large number of schoolboys among whom there had been almost an epidemic of albuminuria, and also a number of medical students over a period of several years, the albuminuria had proved to be due mainly to euglobulin, the acetic acid test revealing its presence. He applied the test in the following order:—

First test for the presence of protein; 3 to 6 drops of salicyl sulphonic acid are added to about 10 c.cm. of urine, and the appearance of a white precipitate noted. The presence of the particular type of globulin that occurs in adolescent albuminuria was determined by adding 3 to 6 drops of diluted acetic acid to 10 c.cm. of urine, when a white precipitate or opalescence appeared at once.

In a large number of cases a gelatinous precipitate appeared after a time, due to mucin and not euglobulin, and especially common in urine of high specific gravity and strongly acid reaction. To label cases as non-nephritic albuminuria required more thorough examination of the urine than was possible in insurance practice. The ratio of albumin to globulin in ordinary nephritis was generally 6:1, but in functional and adolescent albuminuria only 2:1. In leaky kidneys of the non-progressive type of albuminuria in older people the ratio was generally reversed. Many cases of adolescent albuminuria cleared up, but with intercurrent illness the albuminuria readily returned. A man,[1] aged 29, who had albuminuria with large quantities of euglobulin for 13 years, remaining in perfect health with no obvious signs of renal trouble, died of acute uræmia a month after the urine was examined. During that month albuminuric retinitis developed and all the signs of small white kidney. He was beginning to think that any form of albuminuria was pathologically dangerous. The whole question of why globulin appeared in the urine in certain conditions required further elucidation.

Sir DOUGLAS POWELL quoted a statement made with regard to the soldiers in France. Some albuminuria having been found in 5 per cent. of 50,000 men, yet of all the cases in which organic disease of the kidneys arose scarcely any came from the number of those in whom temporary albuminuria had been noted. His disposition would be to regard these functional cases of albuminuria as negligible and pass them as ordinary lives if perfectly sound in every other respect.

The PRESIDENT emphasised the difficulty in diagnosing the adolescent type from other types of albuminuria in adolescents. He asked Dr. Wallis and Dr. Maclean whether they had observed under the microscope the centrifuged deposit in their cases of albuminuria, and whether they made blood pressure examinations.

Dr. MACLEAN said that out of the total of cases he had examined 5–6 per cent. had albuminuria, 2 per cent. in marked degree albuminuria, and something over 1 per cent. had fair numbers of casts. There was no opportunity of doing blood pressure experiments in France, but at home he had not found that the administration of urea exerted any effect on the pressure. Among certain cases of non-nephritic type of albuminuria the blood pressure was distinctly low and oxalates were found in the centrifuged deposits.

Dr. MACKENZIE WALLIS said he had noticed the constancy of oxalates in these cases of adolescent albuminuria. In a centrifugalised deposit he did not pay much attention to the presence of hyaline casts. With regard to blood pressure, that had been recorded in nearly all his cases, and was generally normal. The patient whom he had described had a normal blood pressure for 13 years; then he had an illness and developed albuminuria, and up went the blood pressure at once to over 200 mm. Hg.

Dr. LANGDON BROWN thought that a patient under 30 without other signs might be regarded as a normal risk. The globulin test was important, and had the advantage of being easily applied. Some people passed mucin and not albumin or globulin at all. He agreed with regard to the liability of a person who had had functional albuminuria to a return under strain of illness. The experience of school medical officers was of value. Dr. Clement Dukes had taken every opportunity he could to test old Rugbeians who had had "functional" albuminuria, and only in one of those cases had albuminuria persisted in later life. Functional albuminuria below 30 years of age was very important from the life assurance point of view, because of the number of cases; leaky kidneys were so rare as to be unimportant.

The Discussion Resumed.

When the discussion was resumed on Jan. 5th Dr. F. PARKES WEBER divided the albuminuria of youth and early adult life from the point of view of prognosis and examinations for life assurance and appointments into four main classes:—

1. Albuminuria connected with definite nephritis, chronic heart disease, acute febrile diseases, amyloid disease, and other conditions, such as are met with in hospital wards and ordinary medical practice. In these cases the amount of extra on the life should depend on a variety of circumstances—for instance, the presence or absence of tube-casts, the amount of the leakage of albumin, the results of various tests as to efficient functional activity of the kidneys, the length of time that the albuminuria had lasted, the blood pressure, and the condition of the candidate in other respects.

2. Transient albuminuria due to various causes. In

[1] This case was recorded by Dr. Ivor J. Davies in THE LANCET of Dec. 18th, 1920, p. 1249.

such cases several examinations were often required before the life could be regarded as a first-class one.

3. Postural or orthostatic albuminuria. In uncomplicated cases of orthostatic albuminuria he was convinced that the life might be regarded as a normal one from the life assurance point of view. No young person should be prevented from living an ordinary active life merely because of the presence of orthostatic albuminuria. In regard to prognosis help might be obtained by estimating the relative proportions of serum-albumin and globulin in the urine, but it was of at least as great importance to ascertain whether albumin was altogether absent from the urine passed immediately on getting out of bed in the morning.

4. The presence of albumin (frequently only a trace) accompanying minute quantities of pus, blood, or semen in the urine. The slight opacity in the urine in these cases might easily be overlooked, or wrongly neglected as of no importance, in examinations for life assurance.

Sir JAMES GALLOWAY, Dr. H. BATTY SHAW, Dr. H. M. ABEL, Dr. H. W. COLLIER, Dr. F. G. CHANDLER, and Dr. A. WITHERS GREEN also spoke.

Dr. HINGSTON FOX, in replying, suggested that the interesting case of a rare form of albuminuria described by Dr. Wallis and others did not fall into the category under discussion, for there was continuous high arterial tension, albumin was present in large quantity, and persisted during bodily rest. Evidently the tests for the efficiency of kidney function were not yet in a position to be fully relied on; he hoped more work would be done with the urea-concentration test in albuminuric cases. The discussion had led to a fuller recognition of a type of albuminuria, occurring commonly in adolescence, harmless in its nature and independent of any disease of the kidney. Dr. Fox concluded by citing a table (prepared for him by the kind offices of Mr. F. J. Cameron, of the Friends' Provident and Century Life Office) showing the mortality of assurers in whose urine albumin was found once, at entrance or within two years previously, but no casts were reported present. The lives were very carefully selected and few, if any, taken "until there was reason to believe that the presence of albumin was temporary and unimportant." The policies were issued in the 24 years 1885 to 1908, and the period of observation varied much; in about two-thirds of the whole number of lives it was five years or less.[2]

Ages at entry.	Actual deaths.	Expected deaths.	Ratio of mortality.
15–29	70	65·16	107%
30–39	58	43·75	133%
40–49	37	33·47	110%
50–59	29	27·20	107%
60–end	8	5·48	146%
All ages	202	175·06	115%

It would be seen that for those entering in adolescence, before the age of 30 years, the mortality hardly exceeded the normal for healthy lives, while there was a considerable rise for those entering in the next decade.

SOCIETY FOR THE STUDY OF INEBRIETY.

AT a meeting of this society, held in the rooms of the Medical Society of London on Jan. 11th, Sir ALFRED PEARCE GOULD presiding, Dr. H. M. VERNON opened a discussion on

Alcohol and Industrial Efficiency.

At the present time, he said, public opinion would not sanction any direct limitation in the amount of alcohol consumed, but temperance could be promoted by the physiological regulation of the conditions of drinking. It was easier to investigate the effects of alcohol on the efficiency of manual workers than on that of the non-manual, but the conclusions arrived at concerning the importance of regulation in the former class apply equally to all workers. The effects of alcohol on typewriting were systematically studied, as this was a class of manual work in which accuracy and speed could be easily measured. The subjects of experiment typed a memorised passage at frequent intervals before and after drinking the alcoholic liquid, and it was found that in each of the seven subjects the adverse effect of the alcohol was about twice as great when it was taken 3½ hours after food, or on an empty stomach, as when it was taken with food. In a fresh series of experiments Dr. Vernon drank whisky containing 45 c.cm. (1½ oz.) of alcohol at various periods after a substantial meal had been eaten. He found that whilst the effect produced was comparatively slight up to two hours after food, it then underwent a sudden jump, and 3½ hours after food the effect was increased to more than double. With more prolonged fasting (up to 20 hours) the effect became greater still. When vigorous exercise was taken at the end of a 13 hours' fast the effect of the alcohol was greatest of all, and for a few minutes induced a condition not far removed from intoxication. Conditions similar to the experimental ones described were sometimes observed in industrial workers before the war, when they worked hard for two or three hours in the early morning on an empty stomach and in the breakfast interval visited the public-houses (then open at 5 to 8 A.M.) before eating food. On comparing the toxicity of beers containing 5, 4, and 3 per cent. of alcohol (by volume) it was found that dilution had a much more than proportionate effect in reducing toxicity. For instance, 90 c.cm. of alcohol taken in the form of 3 per cent. beer produced only as much effect as 46 c.cm. of alcohol in the form of 5 per cent. beer. In fact, the speaker concluded that it was practically impossible to get intoxicated on beer containing 3 per cent. of alcohol. This conclusion was borne out by what is observed in Denmark, where the Government allow beer containing 2·6 per cent. (by volume) of alcohol to be produced and sold free of all taxation, though the stronger beers are taxed, and are therefore more expensive. In consequence of this policy intoxication has almost ceased, and it is suggested that in this country a scheme of graduated taxation of beers of different gravity—such as was brought forward (without success) by the Chancellor of the Exchequer in 1915—would greatly increase sobriety. In confirmation of previous results he found that the toxic effects of whisky reached their maximum at 10 per cent. alcoholic strength (by volume), and at this concentration they were just as great as that of neat whisky 15° to 50° under proof. Hence, spirit-drinkers, by diluting their spirits moderately, would reduce the injurious action on the gastric mucous membrane without diminishing the alcohol sensation they desire. The typewriting method showed that alcohol disappeared from the human body at about the same slow rate as Mellanby found it to disappear in the dog. In Dr. Vernon's own case it was got rid of at the rate of about 13 c.cm. per hour, or nearly half an ounce. In that a pint of fairly heavy beer contained an ounce of alcohol, it followed that if a man drank a pint every two hours (as was observed during the daytime in some industrial drinkers before the war) his blood was never free from alcohol. The policy of the Central Control Board in shutting the public-houses for part of the day was valuable in checking this continuous drinking.

Discussion.

An interesting discussion followed. Dr. M. GREENWOOD spoke of the danger of the return to pre-war inebriety, when drink made industrial conditions less intolerable for the working classes. We must aim at a more ideal life for the worker, at the same time continuing the limitation in the hours during which public-houses were open. Miss SQUIRE lamented the failure to produce a popular drink which could be consumed with impunity. Good food had made an enormous difference to the physical and moral wellbeing of the munition workers during the war. The canteen had been a distinct achievement in the path of progress. Mr. NICHOLSON said that prohibition, whatever its merits, was looked upon as a class measure by the labouring man, and Mr. THEODORE NEILD added that in America an attempt was being made to eliminate the saloon without stopping the sale of liquor. The importance of a low-gravity beer was brought out in other contributions to the discussion.

[2] Of the 202 cases, in 152 no examination was made for casts. On account of the smallness of the numbers the two groups had been combined. The effect of medical selection during the earlier years after entry had been duly allowed for in the "expected deaths."

Reviews and Notices of Books.

THE DIAGNOSIS AND TREATMENT OF BRAIN INJURIES.

By W. SHARPE, M.D. London and Philadelphia: J. B. Lippincott Company. 1920. With 232 illustrations. Pp. 757. 35*s*.

GENERALLY speaking, there are two types of surgical text-book. One aims at giving a systematic description of a subject, incorporating both old and recent work and quoting a few cases only illustrative of one or more points of importance. The other, generally described as a monograph, presents a concise account of recent work and, in support of the argument, a description of every reported case, or at least of every case in the surgeon's own practice, should be included. The work under review fails to qualify for either category. The subject with which it deals is one of the largest and oldest branches of surgery, upon which, however, much new work has recently been done, and thus it is an ideal one for a modern text-book of the first variety. Of the 757 pages only 122 are devoted to subject matter. The remainder are given over to case-histories, of which there are 195, and although they are classified, carefully described, and analysed, it becomes a tedious and almost impossible task to read steadily through them in the hope of gaining a systematic knowledge of the subject. In a text-book issued so recently after the war the omission of a full discussion of the early treatment of bullet and shrapnel wounds of the brain, and of definite advice as to whether an immediate extensive operation should be carried out, or whether the foreign material should be left in situ for removal at a later date, is disappointing. This class of case is not separately described, and the only reference to it lies in the account of a few civilian cases of bullet wounds. The book gives the impression at first of a rather too voluminous monograph in favour of subtemporal decompression for all cases of increased intracranial pressure; there is, however, a great deal in the subject matter which will be found of very considerable value and which is evidently based upon a wide experience, and the author brings forward strong arguments in favour of his contentions.

The account of the indications for operative interference in cases of injury will be found of much practical value, though even in these chapters there is much needless repetition. The author lays stress upon the fact that apart from depressed fractures of the vault, the indication for operation is an increased intracranial pressure. A very lucid account is given of the various methods of determining this increase, and stress is laid upon the fact that no operation should be undertaken early when shock is present nor late when there is medullary œdema. In this late stage all cases die, whether they are operated upon or not, and the operation should have been performed before it was reached. A good case is made out for subtemporal decompression, but it is doubtful whether all surgeons would agree with the author as to its indications. It is advised as a preliminary in cases of depressed fracture of the vault, but probably the majority of surgeons would prefer to remove the depressed bone at once, and would deny, provided that the operation is carefully performed, that during the operation the increased pressure would cause damage to the brain. Such treatment is also advocated as a routine method for all cerebral tumours, and one of the reasons given is that no large hernia can develop. This surely defeats the very object of the operation, for if the pressure is great enough to cause a hernia the only method of diminishing the pressure is to allow the large hernia to form. Throughout the work all plates—metal, bone, or celluloid—are strongly condemned. This teaching certainly has not been the outcome of experience gained in the late war, for in certain cases symptoms due to a variation in pressure were completely relieved by closing the large bony defect. The author's advice on this point seems to be based upon operations performed on unsuitable cases. In cases Nos. 108 and 111, for example, the plates had to be removed, but one had the plate inserted whilst the wound was still septic, and in the other it was later depressed by a blow. The older view that traumatic epilepsy is due to chronic irritation is still given, although stress is laid upon the discouraging results of late operation. A useful distinction is, however, made between the cases where the pressure is the cause of the fits and others where the increased pressure is due to the fits, which cases will, of course, not be relieved by operative treatment. There is a valuable chapter on brain injuries in young children, and it is shown that 20 per cent. of the cases usually grouped as Little's disease are due to extravasation of blood with increased pressure, and that if they are operated upon early the brain will probably develop in the normal manner. There is a clear set of pictures of the steps of subtemporal decompression, which are more satisfactory than the series of moving pictures of the actual operation.

There is much of value in this volume, but it is not presented in the most attractive way, and the work would have gained by cutting it down to a short monograph.

THE ORIGIN OF MAN AND OF HIS SUPERSTITIONS.

By CARVETH READ, M.A. Cambridge: At the University Press. 1920. Pp. 344 and Index. 18*s*.

Mr. Read has written an extremely interesting book, which consists of two portions connected together by what seems to us a thread of singular tenuity. He endeavours to answer two questions: (1) How did the frugivorous ancestors of man become converted into flesh eaters? and (2) Why is the human mind everywhere befogged with ideas of magic and animism? In answer to the first question, Mr. Read puts forward the theory that "some time in the Oligocene" (p. 24) the human stock branched off from the anthropoids by becoming a wolf ape (Lycopithecus), living in a pack and supporting life by hunting animals and eating them. Pack life (see p. 10) led to the development of speech and of the use of weapons. Mr. Read agrees with Professor Keith in the view that Neanderthal man and Piltdown man, being inferior types, died out. It is curious how the most recent views on evolutionary matters are coming to be more and more in agreement with Lucretius. For instance, in Book V. of his great poem Lucretius points out, lines 871–876, how inferior types suffered in the battle for existence until, "ad interitum genus id natura redegit," Nature brought that kind to utter destruction. Again, let the reader compare Mr. Read's account of the development of speech in men (pp. 8–9, 54–55) with Lucretius (Book V., 1028–1090) and note the similarity.

As time went on the original pack life became liable to break up, owing (*a*) to improvement of weapons or the discovery of poisons which made even single families self-sufficing, or (*b*) to failure of game, or (*c*) to the adoption of even a primitive pastoral or agricultural life. In these cases the natural leaders of the pack were no longer clearly indicated, and to save the young society from anarchy some other control had to be supplied. This control arose as follows. At some stage or other of the life of primitive man "his imagination began to falsify the relations of things and the powers of Nature" (p. 67). The headmen and old men of the pack began to be credited with magical powers and their descendants in turn were supposed to be possessed of supernatural powers. Hence arose the wizard and the priest, who reorganised society after the break up of the old pack life (pp. 68–69). Here then, if we understand Mr. Read rightly, is the origin of man's superstitions, and we pass from a purely physical headship to a more or less intellectual one. We should, however, think it possible that an intellectual leadership might have been established without the preliminary of "illusory imaginations." All pack-hunting animals have a leader who has succeeded to his post by killing or being able to kill his predecessor, and who holds his post on a tenure like that of the priest of the Arician Diana, until he is killed by his successor. Sometimes it happens that the pack is blessed with a

leader of extraordinary intelligence—e.g., Mr. Seaton Thompson's *Lobo*. If we allow Mr. Read's Lycopithecus to have arrived at the stage of developing imagination, we may equally allow the leader of the pack to have been endowed with extra intelligence and to have assumed or to have been credited with powers, belief in which may have been due to "illusory imaginations" in the subordinate members of the pack, but about which he himself had no illusions. That is to say, that the first priest or the first wizard may only have been a primitive man gifted with more intellect than his fellows and with "imagination" in the right sense of the word—i.e., the sense in which Tyndall wrote of the scientific use of the imagination, to which Mr. Read refers on p. 74. We see that on p. 337 Mr. Read allows that rain-makers learn to "operate for rain only when rain may reasonably be expected," and we do not see why the primitive wise man should apparently be credited with deception. It is interesting to note that an instance of rain or rather thunder making occurs among so civilised a people as the French so late as the seventeenth century, certainly a good example of illusory imagination. In Pepys's Diary for August 21st, 1665–6, there is the following delightful story:—

"Mr. Batelier told me how, being with some others at Bourdeaux, making a bargain with another man at a taverne for some clarets, they did hire a fellow to thunder (which he had the art of doing upon a deale board), and to rain and hail, that is make the noise of, so as to give them a pretence of undervaluing their merchants' wines, by saying this thunder would spoil and turn them. Which was so reasonable to the merchant, that he did abate two pistolls per ton for the wine in belief of that."

If the Bourdeaux fellow with the board had lived in primitive times he would have been a most valuable acquisition to his pack, and we hope that he escaped the fate of the other well-known thunder-maker, Salmoneus, who came to a bad end as recorded in the Æneid.

The second and by far the larger portion of Mr. Read's book deals with magic, animism, and totemism. He ends on a sad note. Animistic illusions have in the past been the influence owing to which

"nations have hitherto submitted to and enforced law and order ..... it is now everywhere noticeable in the more civilised countries that these illusions are being dissipated, and it is very difficult to judge how people will behave when they are gone. ..... Whilst some beliefs concerning supernatural things are being lost, others are being resuscitated; but the lapsing beliefs are noble and venerable, and have exerted great public power and authority; whilst those now eagerly propagated are the raw infatuation of quacks, on a level with the animism of an Australian medicine-man—and indeed much inferior to his, as having no moral influence or authority. What must come of this is so dubious as to discourage one about the future of the world." (Pp. 342-343.)

We fear that Mr. Read's doubts have only too much justification. Emerson was right when he said, "When half gods go, the gods arrive," but nowadays it looks as though the converse were true, and that we should say, "When the gods go half gods arrive." Still, it must be allowed that the world is as a whole better than it used to be, and it is a fact of history that when the world has seemed at its worst a Saviour, divine or human, has come to the rescue, from the time of the first Christmas down through the ages by the voice and example of Francis, Dominic, Ignatius, Wesley, and the countless thousands who have spent themselves to make men better.

MIDWIFERY FOR NURSES.

A Practical Text-book. Seventh edition, revised and enlarged. By ROBERT JARDINE, M.D. Edin., F.R.S., Professor of Midwifery, St. Mungo's College, Glasgow. London: Henry Kimpton. 1920. With 60 illustrations and 3 plates. Pp. 296. 7*s*. 6*d*.

VERY little commendation is required for a book which has reached its seventh edition. This in itself is evidence of its usefulness and popularity. The book has undergone an extensive revision and has been enlarged. It is a good and sound guide for the midwifery nurse, and bears the imprint of the author's large clinical experience. We notice with regret that an old inaccurate figure from Playfair is reproduced, and in a book of this kind plates representing fœtal monsters seem a little out of place.

OPERATIVE GYNÆCOLOGY.

Second edition. By HARRY STURGEON CROSSEN, M.D., F.A.C.S. London: Henry Kimpton. 1920. With 834 illustrations. Pp. 717. 63*s*. net.

THIS very interesting and instructive book includes a systematic presentation of almost all the operative procedures available for the treatment of any gynæcological condition. As the author rightly states in his preface, the best results both for the patient and the operator are likely to be obtained when the surgeon carefully selects that operation which is the most suitable in any given case. The aim of this work is to render such a selection on the part of the operator easier and more certain. For this reason a very wide range of operations is included, and we find no less than 109 pages devoted to a consideration of the different methods of dealing with retro-displacements and some 75 pages to the operations for prolapse and inversion of the uterus. The operative procedures are clearly described and well illustrated. There is a very full account of the various operations for dealing with fibroid tumour of the uterus. We notice with surprise, however, the recommendation to clamp the pedicle of a fibroid polypus, an entirely unnecessary procedure. Not only is the operation of extended abdominal hysterectomy well described, but there is also a very good account of the method of treating cancer of the uterus by heat as carried out by Percy. We are surprised to see so little allusion to the treatment of this condition by radium, nor can we find any mention of radium in the index. The author is in favour of removing ovarian cysts without preliminary tapping, and in this no doubt he is right.

A very interesting section is devoted to foreign bodies left in the abdomen, and the medico-legal aspect of such cases is considered. The author has done a good service in substituting a nomenclature of definite anatomical terms for many operations hitherto known mainly by the name of their originator. In this second edition much new matter has been added and some 60 new illustrations. The book reflects much credit on its author, and will be of great assistance to the gynæcological surgeon.

OBSTETRICS, NORMAL AND OPERATIVE.

Third edition. By GEORGE PEASLEE SHEARS, B.S., M.D., Professor of Obstetrics and Attending Obstetrician at the New York Polyclinic Medical School and Hospital. Revised by P. F. WILLIAMS, Ph.B., M.D., Instructor in Obstetrics, School of Medicine, University of Pennsylvania. London and Philadelphia: J. B. Lippincott Company. With 423 illustrations. 1920. Pp. 745. 35*s*.

IN the third edition of this book a considerable amount of revision has been carried out, although in essential details it remains unaltered. The volume contains a good account of the important facts of obstetrics and is interesting as an example of the teaching in an important American school. In the diagnosis of pregnancy considerable importance is laid on abdominal palpation, and not only the recognition of the anterior shoulder but its exact location in regard to the middle line and the symphysis pubis is shown to be of much value. The section on anæsthesia in labour has been added to and there is a good account of the method of employing nitrous oxide oxygen analgesia in labour. The authors are not on the whole in favour of twilight sleep and do not practise this method to any extent. The section on backward displacements of the uterus complicating pregnancy is disappointing and the authors are too ready to recommend unnecessary and early interference. In the chapter dealing with extra-uterine pregnancy nothing is said of Taylor's work on advanced extra-uterine gestation and of the important distinctions demonstrated by him in the anatomical relations of these cases. The authors are wrong in imagining that the great advantage of placing the patient upon her side in difficult cases of bringing down a leg in impacted breech presentations is not generally

recognised by obstetricians; the procedure is, as a matter of fact, commonly taught in this country. Considerable additions have been made to the sections dealing with Cæsarean section and the toxæmias of pregnancy. The book is a good one of its kind and clearly written.

THE SCHOOL OF SALERNUM

And the Regimen Sanitatis Salernitanum, with the English version of Sir John Harington, 1607. Together with a History of the School of Salernum. By FRANCIS PACKARD, M.D., and a note on the Prehistory of the Regimen Sanitatis. By FIELDING H. GARRISON, M.D. New York: Paul B. Hoeber. 1920. Pp. 214. $3.75.

THE School of Salerno and the Regimen Sanitatis are subjects of perennial interest, not merely from their intrinsic qualities but also because the origin of both is a matter of hopeless obscurity. In this edition of the Regimen, which includes a Latin text as well as Harington's translation, Dr. Packard and Dr. Garrison have written essays which gather up all that is known about the origin of both the School and the Regimen, and it does not amount to much. What evidence there is, is chiefly of a negative order—for example, there is not a particle of historical foundation for the theory that the rise of the School can be connected with the Benedictine House of Monte Casino.

The School of Salerno is now but a name, but the Regimen remains as a typical example of a mediæval popular treatise on medicine and the care of the health, one, moreover, which contains much sound sense; Harington's translation is well worth reading though not very literal. The book is well printed and the text is illuminated here and there by illustrations, some of them reproductions of German woodcuts of the sixteenth century, in all of which the execution is coarse, and in some of them the subjects as well.

PHYSICAL CHEMISTRY IN MEDICINE.

Die Physikalische Chemie in der Inneren Medizin: Die Anwendung und die Bedeutung der physicochemischen Forschung in der Pathologie und Therapie. Für Studierende und Aerzte. Von Prof. Dr. H. SCHADE, Vorsteher der physicochemischen Abteilung der medizinischen Universitäts-Klinik in Kiel. Dresden und Leipzig: Verlag von Theodor Steinkopff. 1921. Pp. vii. + 569. £1 1*s.*

PHYSICAL chemistry is now established as a distinct and definite part of physiology, medicine, and pathology, but it is scarcely realised that its ramifications extend over almost the whole range of medicine. The appearance of Professor Schade's book is therefore very welcome, for it summarises and explains various medical and pathological phenomena by physicochemical reactions. In the past we have relied largely upon histological evidence for an explanation. This evidence is not a real explanation; it merely indicates that something abnormal has occurred and a theoretical discussion on a biological basis has followed. No single physico-chemical process gives us sufficient information, but by a coördination of several processes we advance nearer to a better conception of certain pathological conditions.

As an illustration of the complexity of the processes occurring in disease, we may merely instance the author's interpretation of the phenomena of inflammation. The injury, caused by an external agent, first produces a change in the colloidal state of the cell protoplasm, such as an alteration of surface tension. The purely mechanical method of flow of light and heavy particles in a moving liquid, the lighter particles being at the edges, accounts for the movement of the leucocytes along the walls of the blood-vessels, so that they come into contact with the damaged tissue. The alteration in surface tension of the damaged cells causes the arrest of the leucocytes. The wandering of the leucocytes into the injured tissue probably corresponds to the streaming of droplets in a fluid in a direction opposite to the flow of substances lowering surface tension. At the same time the permeability of the cell wall is changed; its porosity is increased so that albumins and globulins can pass through to form the exudate. All three processes effect a conversion of the particular colloidal state to the *sol* form. Substances, such as the autolytic enzymes, are produced which hydrolyse the complex molecules of albumins, fats, &c., to smaller ones. The cell contents thus become hypertonic and liquid flows into the damaged area causing swelling. A calculation indicates that the osmotic pressure may reach 8 to 11 atmospheres. The high pressure affects the blood circulation to this area producing a diminished flow; the lymph circulation is also affected. It is the osmotic pressure change which causes the pain, and the actual pressure sets up the throbbing. The local heat appears to be the result of the intensive chemical changes set up, the heat not being carried away fast enough by the diminished blood flow. The various processes occurring may be summed up as being purely chemical, purely physical, and physico-chemical—namely, osmotic, ionic, colloidal, fermentative.

Throughout the book the author gives an equally clear description of other pathological conditions and we can recommend his book as an outline of this vast and important subject. The reader is helped to understand the complexities by a short account, in the first section of the book, of those parts of physical chemistry of importance in medicine, the last section being devoted to the practical description of these methods which would require some amplification for a novice, but which are most excellent for any worker with experience of physical chemistry.

PYORRHŒA ALVEOLARIS IN ITS CLINICAL ASPECT.

By D. A. CROW, M.B., Ch.B. Edin., Assistant Surgeon to the Sussex Throat and Ear Hospital, Brighton. With Foreword by Sir FRANK COLYER, F.R.C.S., L.D.S. Eng., Dental Surgeon, Charing Cross Hospital, and Royal Dental Hospital, London. London: Baillière, Tindall, and Cox. 1921. Pp. 111. 6*s.*

THE object of this little book, as stated in its introduction, is "to emphasise once again the overwhelming importance of pyorrhœa alveolaris in the causation of many of the diseases and minor complaints met with in medical practice." The chapters deal with clinical signs, X ray appearances, symptoms local and general, the neglect of pyorrhœa in classical medical literature, its treatment and prognosis. There follow a summary and analysis of 100 cases and an explanatory pamphlet for patients, which is by far the weakest section of an otherwise well-planned and pleasantly written treatise. Unfortunately the ætiology of the disease is still too obscure and debatable for any attempt to educate the public in prevention to be convincing. They are told that mouth-breathing should be avoided, and that (p. 110) "it is possible, but not certain, that a modification of diet would have a preventive influence in pyorrhœa." In an admirable foreword Sir Frank Colyer points out that the disease is neither of recent origin nor restricted in locality, and gives certain definite rules for maintaining the hygiene of the mouth in the young. Sir Frank Colyer agrees with Dr. Crow that the disease having once become established, neither physic nor vaccine-therapy is of use, and that extraction of every diseased tooth is the sole means by which a patient can be freed from the source of sepsis.

COMPENDIUM DER AUGENHEILKUNDE.

Für Studierende und Aertze. Eleventh and twelfth revised editions. By Professor Dr. PAUL SILEX. Berlin: S. Karger. 1920. With 95 figures and 2 coloured plates. Pp. 304. M.20.

THIS appears to be by no means a mere boil down of larger works, but a reliable introduction to the subject written by a man who has had considerable experience of teaching. The book, moreover, is small enough to be conveniently carried in the pocket. As a commendable example of simplicity we may cite the advice to

use clean water as an eyewash in hyperæmia of the conjunctiva, and to permit smoking out of doors provided the pipe is sufficiently long. The ordinary rules for diagnosis and treatment are clearly expressed. The part devoted to operative surgery is somewhat meagre, the description of the operation for cataract, for example, being without any figure that would make it intelligible to the novice. The operative treatment of glaucoma, too, is barely indicated. On the other hand, two pages are devoted to a subject which one does not expect to find discussed in an elementary treatise of this kind—namely, the therapeutic employment of light and ultra-violet rays. A mercury vapour lamp (or an arc light) is used from which all the rays are screened off, save only those which it is desired to employ for the therapeutical purpose. Ultra-violet rays of wave length 300 $\mu\mu$ to 360 $\mu\mu$ are all absorbed by the cornea, and, if injudiciously applied, may cause an alarming reaction. Periodical exposures lasting from 5 to 20 minutes, however, are recommended as a treatment for corneal opacities.

We notice, what is not very usual in German textbooks, the recognition of some English authorities, though in the pages devoted to colour blindness (which are so far up to date that the Holmgren wool test is stated to be fallacious) no reference is made to the work of Edridge-Green. In the section on Workmen's Compensation formulæ and tables are given to aid in the assessment of the loss of earning power due to injuries resulting in loss of vision of various degrees, in either one or both eyes. The Germans have a longer experience of workmen's compensation laws than we have, and those interested in this subject will find it useful to consult these tables.

ANNALS OF MEDICAL HISTORY, 1919.

New York: Paul B. Hoeber. Vol. II., No. 4. Pp. 407. $2.50.

"Annals of Medical History" is always an interesting publication, and the number before us is particularly so. The first article by Dr. F. H. Garrison and Dr. E. C. Streeter deals with Sculpture and Painting as Modes of Anatomical Illustration, and traces the progress of anatomy in art from the earliest days of the Aurignacian period down to modern times. The authors' thesis is "that genuine anatomic illustration arose not in didactic hand drawings made by physicians, but without didactic intention, in the sculptures and figure paintings of the great Florentines." Dr. John E. Lane writes about Daniel Turner (1667–1741), the recipient of the first degree of Doctor of Medicine conferred in the English colonies of North America by Yale College in 1723. Turner, though a Licentiate of the Royal College of Physicians, was anxious for a medical degree, and apparently did not hold the Scottish degrees in high estimation. So he wrote a Latin letter to the authorities of Yale University offering them a gift of books, appended to which was a postscript in the regular schoolboy style of "PS.—Please send me a cake," and it ran thus:—

"Si Dominationes vestrae me dignum judicatis Doctoratus Gradus Academiae Yalensis, et diploma mihi transmitti curatis, accipiam non tantum ut signum Gratitudinis Vestrae," &c.

Turner is chiefly remembered to-day by Turner's cerate, a calamine ointment.

Dr. John Ruhrah contributes an article upon Thomas Phayer or Phaer (1510?–1560), author of the first English book on the diseases of children. Dr. Ruhrah has collected a vast amount of information about Phayer, but unfortunately his article is marred by several careless statements and some gross misprints. To give an instance: Phayer composed a treatise on the plague, some extracts from which, says Dr. Ruhrah, were "used by Henry Holland in an appendix to 'Spiritual Preservatives against the Pestilence.' ..... This Henry Holland was a son of a physician, Philemon Holland, and was as assiduous a translator as ever existed, who also did the 'Regimen Sanitatis Salerni' into English." This is a muddled statement. Philemon Holland was the assiduous translator, not his son Henry, and though Henry, the son of Philemon, did translate the Regimen, the Henry Holland who wrote "Spiritual Preservatives" was another Henry Holland, a divine who wrote the book in 1593, when Henry, son of Philemon, was only 10 years old. In quoting Chaloner's epitaph on Phayer, in which reference is made to an accident sustained by the latter, Chaloner's lines—

"Nam domini cultor, quis vitet fata? cruorem
Hauserat ....."

are printed—

"Nam domini cultor, quis vitet fata? Cruorum
Houserat ....."

which makes nonsense. Outside of his professional writings Phayer won great praise by his translation into English of the Æneid, or rather of the first nine books and part of the tenth, the remainder being translated by Thomas Twine. It is curious that the last lines he translated on the day before his death were (Bk. X., 467–469):—

"Stat sua cuique dies, breve et inreparabile tempus
Omnibus est vitae: sed famam extendere factis,
Hoc virtutis opus."

LES ANTIGÈNES ET LES ANTICORPS.

By M. NICOLLE. Paris: Masson et Cie. 1920. Pp. 115. Fr.4.50.

THIS small monograph comprises the Harben lectures for 1920, delivered by Professor Nicolle before the Royal Institute of Public Health in London. The lectures, three in all, have also been published, more or less contemporaneously, in English, in the *Journal of State Medicine* for October, November, and December. The first lecture deals with the general characters of antigens and antibodies. The author classifies all toxins into three categories: (1) neurotoxins; (2) toxins generating damp slough; and (3) toxins generating dry slough. He points out that these toxins contain two distinct elements, active and inactive, or have, in other words, non-antigenic and antigenic properties. Interaction between antibody and antigen takes place by means of two processes, coagulation and lysis, the former active in the absence of complement.

The second lecture deals with the diagnostic applications of antigens. Here the author discusses the relative value of precipitation, agglutination, and complement-fixation as a means of classifying bacteria, and his remarks on the numerous pitfalls in the application of these methods will be endorsed by every bacteriologist. Indeed, the author's short homily on technique will appeal to all laboratory workers:—

"Employer toujours les mêmes antigènes .....choisir les échantillons qui offrent les reactions les plus spécifiques; les garder dans les meilleures conditions; s'assurer fréquemment que leur sensibilité aux anticorps homologues n'a varié ni quantitativement, ni qualitativement ..... Travailler toujours dans les conditions identiques. Faire toujours des témoins. ....."

In the third paper Professor Nicolle discusses the therapeutic application of these principles, based chiefly on his own extensive experience in preparing anti-sera during the war. In this connexion he is careful to distinguish between: (1) pathogenicity or the ability to produce morbid lesions; (2) toxicity or production of a specific poison; and (3) virulence or ability to multiply in the tissues.

JOURNALS.

Brain. Vol. XLIII. Part 3. 1920.—The Symptom-Complexes of Lethargic Encephalitis, with Special Reference to Involuntary Muscular Contractions, by F. R. Walshe. The author pleads for the classification of the symptoms of any toxic infective disease of the nervous system according to an anatomical plan. By this means much confusion would be obviated. He instances encephalitis lethargica as a case in point, and shows how such a term as "myoclonus" may be used with varying significance by different authors. Application of a natural classification of symptoms in lethargic encephalitis has led him to the conclusion that whereas in the production of negative or paralytic symptoms the virus has shown a selective action on the cells of the basal ganglia and brain-stem, in its irritant effect it appears to act equally on any and every part of the nervous system.—On Decerebrate Rigidity in Man and the Occurrence of Tonic Fits, by S. A. Kinnier Wilson. This paper is considered elsewhere in THE LANCET.—Relation of the Form of the Knee-

jerk and Patellar Clonus to Muscle Tonus, by H. Viets. Experiments on cats, both spinal and decerebrate, showed that in the former the knee-jerk is a single twitch, in the latter a single twitch followed by a continued contraction of the muscle. This is the "plastic element" in the phenomenon, and it is an indication of muscle tonus. A certain degree of tonus is necessary for the production of clonus; this is termed the "neutral tension" of the muscle, and is a neutral point between the reflex tonus and the weight of the limb; if the tonus be raised or lowered from this "neutral tension" clonus will cease. This study of the form of the knee-jerk was necessarily performed on animals, because in man there are so many factors which cannot be controlled, such as voluntary inhibition of the reflex.—Alterations of the Golgi Apparatus in Nerve Cells, by W. G. Penfield. Variations in nerve-cell activity induced by tetanus, strychnine in doses sufficient to cause repeated convulsions, decerebation and high section of the cord produced no change in the appearance of the Golgi apparatus. The apparatus exhibited a delicate and specific response to a lesion of its axone outgrowth, whether central or peripheral. This feature, retispersion, is ordinarily the first, and in some cases the only manifestation of chromatolysis. By retispersion the author indicates the dispersion of the Golgi apparatus to the periphery of the cell.

American Journal of Ophthalmology. July to December, 1920.—July: S. L. Olsho, The Coördination of Refraction with Spectacle and Eyeglass Fitting. This is a useful article, containing several points about the fitting of frames which are not to be found in ordinary text-books. The author has devised a new trial frame adjustable for faces which are unsymmetrical as to the level of the two eyes. —M. Fringold, Peripheral Communicating Vessels between Retina and Choroid; Fold of Inner Limiting Membrane in Chorioretinitis. An anastomosis between the retinal and choroidal venous circulation is an ophthalmoscopic curiosity. A case was shown at a meeting of the Ophthalmological Society of the United Kingdon by A. Lawson in 1910. This paper gives drawings of three similar cases, one of them with an added anomaly attributed to a fold of the membrana limitans interna. Another similar case of peripheral communicating vessels, probably congenital, is described and figured in the November number of the same journal, by H. S. Gradle.—The July number also contains papers on Wasp-sting Keratitis with Special Colour Changes in the Iris, by Y. Yoshida; on Apparent Sympathetic Ophthalmia nine months after Enucleation, with Implantation of Gold Ball in Tenon's Capsule, by D. N. Dennis; on a case of Ocular Pemphigus, by W. Campbell Pisey; and a note by H. V. Würdemann on a case of Embolism of the Central Artery of the Retina where the circulation was restored by forcible massage applied within a few hours of the onset of blindness. The number of similar cases previously published is 15.

August: The original papers in this number include one by V. Morax on Cataract Operations on Glaucomatous Patients; one by Y. Matsuoka on the Nature of the So-called Blood Infiltration of the Cornea; and one by W. L. Benedict on the Early Diagnosis of Pituitary Tumour with Ocular Phenomena—this last is illustrated by a coloured plate showing different stages in the development of optic atrophy in this disease.—H. J. Howard discusses the Origin of the Vitreous and a note by Aaron Brav suggesting the term "retinitis disciformis" in place of the descriptive but unscientific phrase "hole in the macula," by which cases presenting this appearance have usually been described.

September: F. M. Fernandez, Multiple Aneurysms of the Retinal Arteries. A coloured plate illustrates a very rare condition, which in this case was accompanied by profuse retinal hæmorrhages. The patient died from cerebral hæmorrhage 40 days after the first consultation. The prognosis in these cases appears to depend principally upon the presence or absence of retinal hæmorrhages. A case was described by J. A. Pringle in 1917 without hæmorrhages which he took to be congenital.—W. S. Franklin and F. C. Cordes, Radium for Cataract. This subject is being studied in the Department of Ophthalmology in the University of California. A method of application is employed by which all but the "gamma" rays are screened off. Details of the treatment applied to 31 patients affected with incipient cataract are given in tabular form. The conclusions arrived at are as follows: (1) the application of radium does no injury to the normal structures of the eye; (2) it apparently has a selective action on the lens; (3) radium improved the vision in 84·3 per cent. of the cases for which it was used; (4) a consistent technique and known dosage seem advisable; (5) frequent treatments are necessary in the beginning.—F. T. Tooke, Three Unusual Cases of Foreign Bodies in and about the Eyeball. The first of these cases was that of a Canadian soldier, who had been blinded by the explosion of a hand grenade. One eye had been entirely destroyed and enucleated, and from the other a large piece of steel was removed. The eye was so disorganised by traumatic cataract and irido-cyclitis that at one time its enucleation was considered on account of the pain. For six months he was at St. Dunstan's, and two years after the accident was returned to Canada. There a successful needling was performed resulting in vision 6/12 and with J.2 with a + 10 lens. In the second case, also a war case, a small foreign body, after being lodged in the interior of the globe for a long period, was extracted with the help of the Haab magnet by the anterior route, and a visual acuity of 6/12 was obtained. In the third case the patient kept a piece of steel in his eyeball for 14 years. About once a year it caused an attack of slight pain and inflammation. Ultimately the foreign body found its way into the anterior chamber, apparently as the result of the patient's habit of sleeping on his chest with his face buried in the pillow. The foreign body was extracted, leaving the eye blind from detached retina.—W. Zentmayer, Recurrent Retinal Hæmorrhages. A. E. Davis, Recurrent Retinal Hæmorrhage of Adolescence. These two papers give case-histories of this disease, which was first described by the late Mr. Eales, of Birmingham, about 40 years ago. Its pathology is still obscure, but it may probably be a tuberculous affection of the retinal vessels. The first of these papers suggests that an interference with the functions of the ductless glands—probably the adrenals—may also be a factor in its causation.—The number also contains articles by E. Scott and F. F. Schmidt on Intradural Tumours of the Optic Nerve, with report of a case.—Also three articles by E. J. Brown, Homer E. Smith, and M. Goldenberg on Different Aspects of the Glaucoma Problem.

October: Gordon M. Byers, Reticular Keratitis. Partially opaque lines in the corneal substance may be due to a wrinkling of Descemet's membrane, such as occurs after some cases of cataract extraction ("keratitis striata"), or they may be found in eyes with persistently low tension, when they are due to wrinkling of Bowman's membrane—a series of cases of this sort was described by Holmes Spicer in 1916, under the name of superficial linear keratitis. Other cases, again, have been figured where the opacities, instead of forming approximately parallel lines, constitute a network. The case figured in this paper belongs to this last variety, but the author suggests that it belongs to the same group as Spicer's cases, and that the term "reticular keratitis" ought to be replaced by some such phrase as "anterior corneal corrugations."—Ignacio Barraquer, Phakoerisis. This word is used to designate a cataract operation performed at Barcelona on some thousand cases. The method is one of suction performed with a specially constructed aspirator through an ordinary corneal incision.—Other papers dealing with cataract are by G. R. O'Connor, who criticises adversely Smith's intracapsular operation, by H. W. Woodruff on Safety Procedures, and by W. A. Fisher on Delirium Following Cataract Operations.—W. R. Parker contributes a paper on a case of Cerebral Tumour involving the Right Optic Tract, Chiasm, and Adjacent Brain Substance, with charts showing the progressive loss of visual field.—The last original paper is by M. Lombardo, reviewing the literature of post-diphtheritic ocular paralysis.

November: H. Gifford, Rupture of Cornea by Contrecoup from Bullet Wound of Orbit. The paper proves the possibility of this occurrence, the observations on humans being confirmed by experiments on anæsthetised dogs.—V. B. Blair, Report of Two Cases of Kroenlein's Operation. The skin incision recommended by this operator differs from the usual one and is planned so as to do the least possible damage to the branches of the facial nerve supplying the orbicularis. The history of one of the cases is remarkable, the operation being undertaken on a woman of 31 to extract the blade of a knife 2½ inches long and ⅝ inch wide. It had remained with the point lodged in the orbit as the result of an accident in childhood, its presence being long unsuspected, but proved by an excellent skiagram, which is here reproduced.—J. R. Slonaker, the Physiology of Accommodation in the Eye of the Bird. This paper is important to those interested in comparative physiology. One interesting point is that the ciliary muscle of birds, called Crampton's muscle, and also the sphincter and dilator of the pupil are striated, and therefore better adapted for the quick adjustments required in the course of rapid flight through the air than if they were unstriated as in man. Another point is one in which the author differs from some previous observers. He maintains that the ciliary muscle in birds does not act as in man by altering the curvature of the lens, but by a movement of the refracting media along the axis of vision, thus resembling the focussing mechanism of a camera rather than that of the human eye.—In addition to these articles C. F. Charlton discusses the Function of the Lacrymal Secretion from the Point of View of Chemical Physiology; G. H. Burnham relates a case bearing on the Medico-legal Aspect of Blows on the Eyeball in the Region of the Ciliary Processes; S. B. Chase gives a preliminary report on a case of Double Glioma of the Retinæ which he is treating with radium; C. E. Ferree and Gertrude Rand describe an adaptation of their apparatus for

determining visual acuity at low illuminations to the testing of light and colour-sense; T. E. Oertel relates a case of Spontaneous Luxation of the Eyeball; and C. C. Rush gives charts showing the changes in the visual fields after operation for chronic glaucoma.

December: Edward Jackson, Thrombosis of Retinal Veins after Influenza. Two cases in women, aged 59 and 33, are recorded with illustrative plates. In one of them the mass of the hæmorrhage appears to be of the subhyaloid variety. Both patients recovered nearly full vision, and in general, the author remarks, venous thrombosis due to influenza has not the sinister significance of retinal hæmorrhage from some other causes.—H. Friedenwald, Self-inflicted Conjunctivitis. An hysterical girl deceived her doctors by producing a condition of the conjunctivæ which was diagnosed as trachoma. The eye was effectively treated by being sealed under a Buller's shield.—W. L. Benedict, Value of Dental Examination in the Treatment of Ocular Disorders. This paper, from the Mayo Clinic, is of considerable interest. Transmission of organisms from diseased teeth to the eye may happen in one or more of three ways: (1) by direct extension through bone; (2) by the periosteum; or (3) by the blood stream, this last channel being the most usual one. Extraction of teeth does not always yield beneficial results, for it is possible that after extraction a septic pocket may have remained a source of infection. In these cases the use of autogenous vaccines is advocated. Rosenow has shown that organisms taken from diseased teeth are capable of producing disease of the eye when injected directly into the blood stream of animals; and, furthermore, that such organisms have a selective affinity for certain structures of the eye, and that within limitations this selective affinity is characteristic of the strain, and is maintained through several cultural transplants of the organism. Nevertheless the writer believes that the urgency of obtaining surgical cleanliness of the mouth before ophthalmic operation on old people has been overstated, a view that encountered some opposition in the discussion that followed the paper. He also deals with reflex disturbances of the lids and eye muscles relieved by the extraction of decayed teeth.—H. Sewall, Some Optical Imperfections of the Eye and Some of their Uses. This paper is concerned with the effects of light entering the eye through the sclera and the psychological effect of the indirect field of vision on central vision, especially in the matter of colour contrast.—The number includes a report of two cases of Glioma of the Retina, by C. C. Rush; of Malignant Melanoma of the Choroid, with Gradually Decreasing Intra-ocular Tension, by L. M. Francis; of Anomalous Pigmentation of the Skin and Eyelids, by H. V. Würdemann; and of Orbital, Epidural, and Brain Abscess, by M. Blake. The last paper, by J. M. Banister, is entitled, "Hints in Relation to the Dynamics of the Extrinsic Ocular Muscles, with Suggestions as to Treatment of States of Muscular Imbalance."

DANGEROUS DRUGS ACT, 1920:

ISSUE OF DRAFT REGULATIONS.

DRAFT regulations have been issued by the Home Office in regard to the carrying out of the Dangerous Drugs Act which became law last August. Since Sept. 1st, 1920, and pending the issue of regulations under the Act, the restrictions imposed by Dora 40 B have remained in force.

The draft regulations are based upon two Sections of the Act: (1) Section 3, for controlling and restricting the possession, sale, and distribution of raw opium; (2) Section 7, for controlling the manufacture, sale, possession, and distribution of morphine, cocaine, ecgonine, and diamorphine (commonly known as heroin) and their respective salts, and medicinal opium, and preparations and substances containing not less than 1/5th per cent. of morphine or 1/10th per cent. of the other alkaloids.

Manufacture.—In regard to morphine and the other alkaloids enumerated no one shall manufacture them or carry on any process in their manufacture without a licence, except on licensed premises, or otherwise than in accordance with the terms of the licence.

Sale and distribution.—No one shall supply or procure (or offer to do so) raw opium or any of the drugs mentioned for any person whether in the United Kingdom or elsewhere, nor advertise them for sale, unless he is licensed to do so:

Except when the drugs are lawfully dispensed in pursuance of a prescription given by a legally qualified medical practitioner in accordance with certain conditions. Exemptions may be granted for dispensing at public hospitals and on board ship.

Prescribing and dispensing.—The prescription must be in writing, must be dated and signed by the medical practitioner with his full name and address and qualifications, and marked with the words "Not to be repeated," and must specify the total amount of the drug to be supplied on the prescription, except that in the case of prescriptions issued for National Health Insurance purposes on the form provided by the Insurance Committee the medical practitioner's address and qualifications and the words "Not to be repeated" need not be marked on the prescription.

The conditions to be observed by persons, *including any medical practitioner*, dispensing prescriptions for the drugs are:—

The drugs shall not be supplied more than once on the same prescription.

The prescription shall be marked with the date on which it is dispensed, and shall (unless issued for National Health Insurance purposes on the form provided by the Insurance Committee) be retained by the person, firm, or body corporate, by whom the prescription is dispensed, and shall be kept on the premises where it is dispensed.

The ingredients of the prescription so dispensed, with the name and address of the person to whom it is supplied or delivered, shall be entered in a book specially set apart for this sole purpose and kept on the premises where the prescription is dispensed, so that it shall at all times be available for inspection.

Possession.—No one shall be in possession of raw opium or of any of the drugs unless he is licensed to import or export, or to manufacture or supply the drug, or unless he can prove that the drugs were supplied in accordance with a legitimate prescription.

Any duly qualified medical practitioner, or registered dentist, or registered veterinary surgeon, or person employed or engaged in dispensing medicines at any public hospital or other public institution being a person duly registered under the Pharmacy Act, 1868, is authorised, so far as is necessary for the practice of his profession or employment, to be in possession of and supply the drugs.

Labelling.—No one shall supply any article into the composition of which any of the drugs enters in a package or bottle which has not plainly marked on it the amount of the drug in the article, and the total amount in the package or bottle, and in the case of solutions the amount and percentage of the drug in the solution.

Bookkeeping.—Every person who supplies raw opium or any of the drugs, *including any medical practitioner*, shall enter in a book kept for the purpose all supplies obtained by him and all dealings effected by him. Separate books are to be kept for: (*a*) cocaine and ecgonine and substances containing them; (*b*) morphine and substances containing it; (*c*) diamorphine and substances containing it; (*d*) medicinal opium. Entry is to be made on the day on which the drug is received and on the day on which the transaction is effected. A separate book is to be kept in respect of each set of premises. The book shall at all times be available for inspection. No cancellation, obliteration, or alteration is to be made, any mistake in an entry being corrected by a marginal or foot-note.

Pharmacists.—Any person lawfully keeping open shop for the retailing of poisons is authorised:

To manufacture at the shop in the ordinary course of his retail business any preparation, admixture, or extract of any of the drugs;

To carry on at the shop the business of retailing, dispensing, or compounding the drugs, subject to the provisions of these regulations.

In the event of conviction for an offence against the Act this authority may be withdrawn.

Schedules are attached showing the form in which records are to be kept.

BRIGHTON HOSPITAL SUNDAY FUND.—The 1920 collections in the places of worship of Brighton, Hove, and Preston, together with the amounts collected in boxes at hotels and clubs, amounted to £1419 17*s.*, as compared with £1537 0*s.* 8*d.* in 1919. After deducting expenses the Fund has been distributed as follows: Royal Sussex County Hospital, £624; Dispensary, £156; Queen's Nurses, £154; Royal Alexandra Hospital for Sick Children, £130; Women's Hospital, £104; Throat and Ear Hospital, £45; Eye Hospital, £45; Royal Surgical Aid Society, £29 10*s.*; Provident Dispensary, £26; Lady Chichester Hospital for Women, £20; New Sussex Hospital, £15; Sussex County Homœpathic Dispensary, £13; Dental Hospital, £13.

THE LANCET.

LONDON: SATURDAY, JANUARY 15, 1921.

The Hygiene of the Sailor.

THE first sailor required all the oak and triple brass he had around his heart to fortify him against the dangers of his risky enterprise. But he, and HORACE, saw only the menace of the sea, of drowning; little they recked of the hidden dangers of his environment—the causes of sickness were then unrealised. The first cargo vessel on record, the *Ark*, with its huge content and small crew, kept its ship's company on board for 370 days, yet no deaths are reported. In the next famous voyage, made by JASON and the Heracleidæ in the *Argo*, the deaths are due to violence or magic, as we also find in SINDBAD'S stories of his sailings in the Arabian Seas. Disease was in those days of unknown origin, doubtless supernatural, and its relation to surrounding conditions or personal carelessness was masked by the period of incubation, which delayed the outbreak of malaria or typhoid fever until a fortnight after the mosquitoes had begun to worry or the store of water had been renewed. Few general diseases have so constant and arresting a syndrome as small-pox, few so short an incubation as cholera; the origin of these from previous cases was, therefore, early recognised.

Every sailor of the eighteenth century lived a hard life. It was not only in the convicts' galleys that conditions were horrible. Excreta, indeed, could be somehow disposed of in the "head," under the bowsprit, always to leeward of the ship; but the wooden ships leaked, the bilge water and the wood rotting in it filled the ship with a putrid smell; the crowding of the mess decks explains the occasional complaints of officers about the heavy odour rising from the hatchways. Part of the smell was due to uncleanliness; where water was so scarce that a sailor must ask leave of the officer of the watch to get a cupful for a drink, there was little to spare for washing. This, no doubt, accentuated the evils of scurvy and helped to prevent its ulcers from healing. Food at its best was unsavoury; it was also insufficiently nutritious, so the men got scurvy, which lost them their teeth and prevented them from eating what little food there was. Then there were calms to break their hearts, give them fevers with delirium, called "calentures," and drive them overboard to reach the sunny green fields they thought they saw. The only alleviation was the good ventilation they got from the wind coming off the sails in fair weather, which poured down the hatches, blew the ship out, and dried it. The work of the old-time sailors was hard, their voyages uncertain, and when they got back we may be sure they were well pleased with their houses ashore, dark, stuffy, and ill-lighted though we now would think them. So that the sailor got real benefit when in the nineteenth century the era of iron and steam arrived. For he now had a dry bed, as leaks were few, there was no bilge-water and no smell of it; passages shortened and food improved, so scurvy ceased. Iron tanks for water replaced casks, and held more. No longer were there days wasted in the Doldrums; passages became much safer when captains had always a calculable driving power under their hands; and old salts shook their heads and feared there would never be sailors like there had been. Steam and iron widened employment, cheapened food, and increased marriages; vaccination and preventive medicine kept the children alive; so population grew. There was need for more sailors. But the accommodation in ships remained much as it had been, while ashore standards of comfort and of wages rose. Sailors of the better class were hard to get among Englishmen; those who joined were drawn by hunger, or recruited by a boarding-house crimp. Sailors have great difficulty in forming a trade union as they do not live or work together in crowds like miners or cotton-spinners. As they could do nothing to keep up wages, cheaper labour was engaged. Foreigners from poorer countries filled up English ships, content to live and work well and patiently in conditions that few Englishmen, who could keep sober, would face. And owners exploited their seamen, not by any means always or often out of design, but through lack of imagination or knowledge. Is it any wonder that the sailor could not believe the first humane advances of the owners to have any but a purely selfish motive? This is the explanation of the fact that when reforms began they were positively resented by those for whose benefit they were designed. The conditions of the merchant marine roused port medical officers of health, notably two in succession in London—Dr. W. COLLINGRIDGE and Dr. HERBERT WILLIAMS, and Dr. WILLIAMS did succeed in getting the cubic space for sailors in the mercantile marine increased in 1906 from 72 to 120 cubic feet. It is 200 cubic feet in the Royal Navy and 240 in the United States merchant marine. The Sailors' and Firemen's Union, late as it entered the field, has done much, and its work has been reinforced now by the opinion of the Royal Navy, first in Admiral BRUCE SOMERVILLE'S frequently quoted article and now, we are glad to see, by the important Chadwick lecture of the Medical Director-General of the Navy. Sir ROBERT HILL supports the claims of merchant seamen to proper treatment with all the weight of his long experience and high official position. For his help the men of the merchant service owe him deep gratitude.

The needs of sailors in ships fall into three classes. There are first the ships of the Royal Navy, with which must be considered the conditions of soldiers in transports. These have a large scientific staff in charge of them and elaborate statistics to manifest their difficulties. They need not be further considered now. Then there are the large passenger steamers with numerous crews; and last the cargo steamers with small crews, berthed probably on a single deck. If we take the *Olympic* as an example of the second class we find the men are well lodged in warmed airy cabins, with suitable spaces for mess-rooms and lavatories, and good food. It is the smaller ships that cause us anxiety, though we published last week an account of conditions in a United States ship of only 10,000 tons which gives its crew comforts superior to those

in any English ship of the size that we have been able to visit. As Sir ROBERT HILL insists, and many port health officers will be in delighted acquiescence, the plans of all ships should be examined and approved by an expert medical officer before their building is begun, and each ship should be inspected and passed, sanitarily, before she goes to sea. Sufficient water should be carried under good arrangements, hot water should be supplied to douches and in lavatories, latrines should be provided with constant flush. There should be a drying-room; every living space should be warmed by radiators; unsheathed, unprotected iron in living spaces should not exist, and there should be artificial ventilation—for a dry ship is a healthy ship. Engine-rooms should be cool; there is just now a promising proposal to seal the engine- and boiler-rooms, and supply all air for the boilers through the engine-room. No sailor should be allowed to have his meals where he sleeps, and hospital accommodation, in isolation, for the sick is necessary. A Seamen's Home in every port will prevent much venereal disease. The mosquito-proofing of a ship in malarial harbours will save much illness. But a card register of the illnesses of all seamen is needed to eliminate the tuberculous, for whom special arrangements must be made at the cost of the owners. Lastly, if the seamen's health is put in the care of the Ministry of Health instead of the Board of Trade, a great deal will have been done to make seafaring an employment fit for the heroes this war again proved so many seamen to be. The report of Dr. J. HOWARD-JONES to the Newport Sanitary Authority, which is reviewed in our columns this week, takes up many of the points on which stress is laid above, and which have been mentioned also in the personal investigations undertaken for THE LANCET on board the ships of various lines.

The Significance of Albuminuria.

THE differentiation of the varieties of albuminuria into those resulting from organic disease of the kidney and those due to some slight disturbance of its function is one of great practical importance. Two noteworthy discussions have taken place on this subject within the last few months—one before the Section of Medicine of the Royal Society of Medicine, to which we have already referred in THE LANCET[1]; the other before the Assurance Medical Society, of which we publish a record in this week's issue. It is interesting to note that the opinion was expressed by several of the speakers that, if the functional or non-nephritic origin of the albuminuria could be established, these cases could be accepted as ordinary risks, provided other conditions were satisfactory. There is now accumulating a great deal of evidence in favour of this opinion, although it must be admitted that before it can be proved definitely by statistical methods careful records of the life-histories of large series of cases must be collected and analysed—the necessary data for which cannot be forthcoming for many years.

Dr. R. HINGSTON FOX, in the careful paper which we publish in full, gave an interesting account of 20 consecutive cases of the albuminuria of adolescents, examined between 1884 and 1896, the average age on entry being 27·7 years. Eighteen of these are known to have lived for an average period approaching 30 years. Fifteen are now living and healthy so far as is known. The most striking fact is that in no case has there been any history of subsequent renal disease. He also drew attention to the fact that Dr. HUGH MACLEAN in his study of 50,000 healthy soldiers in France and 10,000 recruits at Aldershot found albuminuria in 5 per cent., and it appears that of those subsequently attacked with war nephritis the great majority had not shown previous albuminuria. It would seem from these observations that the subjects of functional albuminuria were not specially prone to war nephritis. The general outcome of the discussion was that if a case of albuminuria in a young person, even up to the age of 30, can be proved to belong to the functional or non-nephritic group, and if the case is otherwise unexceptionable, there is little, if any, risk in accepting the life as first-class from the insurance point of view. The difficulty is to establish the position by tests available in ordinary clinical practice or under the still more restricted opportunities of examination for life insurance. The matter is complicated by the fact that though many of the cases belong to the type variously described as postural, orthostatic, or lordotic, there are many other causes of temporary, transient, or variable albuminuria. It does not follow that a test or method of investigation which would demonstrate one of these would be of equal value in all. Indeed, another useful result of the discussion has been the clear demonstration that in the diagnosis of albuminuria from the insurance examiner's standpoint there is no one test, either clinical, chemical, or even microscopical, which can be relied on. An opinion can only be expressed after a careful review of the history, the physique, and general condition of the proposer, the condition of the urine being determined after several examinations at intervals and in some cases after actual investigation of renal function by means of the urea concentration and diastase tests. Dr. HINGSTON FOX gave ten criteria to distinguish what he describes as the albuminuria of adolescents. To these we may refer our readers, as they afford a valuable summary of the methods available. We may draw special attention to the high globulin content of the urine in these cases, which Dr. MACKENZIE WALLIS expresses as the albumin-globulin ratio, but, as we pointed out in regard to a case recently recorded in THE LANCET, this is not reliable by itself, since it has been present in a case of actual renal disease shortly before death. It would seem to be important to take the blood pressure in all of these cases, since it is low as a rule and varies from slight causes. The presence of large numbers of calcium oxalate crystals was a point mentioned by several of the speakers. A warning was also given not to mistake excess of mucin or nucleo-albumin for albuminuria, as is sometimes done. Dr. HINGSTON FOX made some suggestions as to the pathology of this form of albuminuria, but did not mention the work of some Danish observers, which appears to be little known in this country. They claim to have demonstrated by catheterisation of the ureters that the albumin in orthostatic albuminuria comes only from the left kidney, and suggest that it is due to pressure of the ureter on the left renal vein.

The whole subject of functional or non-nephritic albuminuria teems with interest, and still offers a useful field for special investigation. It is now

[1] THE LANCET, 1920, i., 868.

becoming established that certain forms of albuminuria, even in old people, are not of grave import—such, for example, as the condition to which Dr. MACKENZIE WALLIS has applied the name of "leaky kidneys." Such conditions may be of less importance from the insurance medical examiner's standpoint, but they are none the less worthy of study from the point of view of the practitioner of medicine. The attention directed to these points will, we hope, result in further means of differentiating the varieties of albuminuria and appraising their significance.

The League of Nations and the Opium Convention.

IN THE LANCET of May 29th, 1920, we sketched the story of the International Opium Convention from its signature at the Hague in 1912, and referred to the bearing upon its effectuation of the Peace Treaties and the League of Nations. At the recent meeting of the Assembly of the League of Nations at Geneva questions relative to the putting into force of the Opium Convention came under consideration and it may be well to indicate the position in which the matter now stands. A valuable memorandum prepared by the Netherlands Government was laid before the Assembly reciting the steps which had been taken by their Foreign Office, in accordance with Article 24 of the Opium Convention, to bring the articles of that Convention into operation. The authors of the memorandum set out that 42 States had signed, and 19 of these had ratified the Convention, while six of the latter had also signed the special protocol of 1914, which bound its signatories to enforce the Convention irrespective of the action or inaction of other Powers. It was further pointed out that under the several Peace Treaties their signatories bound themselves to enforce the Convention as if they had signed the special protocol.

Two other duties had also been confided by the Opium Convention to the Netherlands Government: 1. To act as intermediary between the Powers in regard to interchange of laws and regulations passed by them to restrict the trade in dangerous drugs, as well as of statistical and other information. 2. To arrange for diplomatic communications which might be required in order to arrive at solutions of any difficulties which might arise in giving effect to the Convention. The Netherlands Government were quite willing, if the Assembly approved, that all these duties should be handed over to the League of Nations and its Secretariat. One other question, however, presented itself, and that was that the Powers represented in the Assembly of the League were not identical with those which were parties to the Opium Convention. There were in fact four groups: (1) States which are members of the Society of Nations and also parties to the Opium Convention; (2) States which are not members of the Society of Nations, but yet are parties to the Convention; (3) States which are members of the Society of Nations, but not parties to the Convention; and (4) States which are neither members of the Society of Nations nor parties to the Opium Convention. The whole question as thus stated by the Netherlands Government was referred to Commission II., and on Dec. 15th a report was presented to the Assembly by Mons. JONESCU (Roumania) on the subject. The Assembly unanimously agreed that it would be preferable for the League to undertake the duties placed upon the Netherlands Government by the Opium Convention with regard to the collection of data and the solution of difficulties. The Secretary-General was accordingly authorised to collect information as to the arrangements made by various States for putting the Convention into force. In view, however, of the importance of securing the coöperation of States which have ratified, or who may hereafter ratify, the Convention, but which are not members of the League, the Netherlands Government was authorised to invite their coöperation, and to be the intermediary in regard to those States. It was, moreover, agreed that an Advisory Committee, representative of the countries chiefly concerned, should be set up, and that it should meet as often as desirable. The Assembly further authorised the Council of the League to add representatives to the Committee in respect of such countries not being members of the League which are nevertheless specially concerned in the traffic. An invitation thus to coöperate was to be specially addressed to the United States. The Advisory Committee has been instructed to present its report to the Council three months before each Assembly for submission to the Assembly.

The Dangerous Drugs Act, which was passed by our Parliament before the long vacation, carried out, as far as British legislation is concerned, the statutory obligations of this country. The all-important regulations to be made in order to give effect to that Act have just been issued in a draft, of which we give a précis on p. 134. Much will depend upon the thoroughness with which they are carried out. The question of our self-governing Dominions and dependencies, and especially India, remains to be considered. Slow though the progress has been in securing world-wide supervision of the traffic in these dangerous drugs of addiction, it seems nevertheless to be sure, and the Secretariat of the League will be well advised to expedite further progress with alacrity.

INDICES TO "THE LANCET."

THE Index and Title-page to Vol. II., 1920, complete with the issue of Dec. 25th last, are given in this number of THE LANCET. The Index and Title-page to Vol. I., 1920, were given in THE LANCET of July 10th, 1920.

Subscribers who write from time to time asking for other Indices should note that the Indices for the two Volumes of 1919 were given in THE LANCET on July 5th, 1919, and Jan. 17th, 1920, respectively. None of these Indices has been issued separately from THE LANCET.

Indices for the years 1916, 1917, and 1918 were issued separately, and were not given in THE LANCET owing to the scarcity of paper. Copies of these Indices for the two Volumes of 1916 and for Vol. II., 1917, can no longer be supplied, as the stock is exhausted. Indices for Vol. I., 1917, and for Vols. I. and II., 1918, can still be supplied.

Prior to 1916 the Indices were given, as now, in THE LANCET.

Annotations.

"Ne quid nimis."

FURTHER NEW YEAR HONOURS.

IN addition to the honours conferred on New Year's day, knighthoods have been granted to two well-known members of the honorary staffs of Metropolitan hospitals. Dr. Maurice Craig, who received the C.B.E. in 1919 for his neurological work in the field, has been acting as consulting neurologist to the Ministry of Pensions. Dr. Percival Horton-Smith Hartley, who received the C.V.O. in 1912, was on the staff of the 1st London General Hospital, and has been connected with the King Edward VII. Sanatorium since its foundation. Sir Napier Burnett has been appointed a Knight of Grace of the Order of St. John of Jerusalem. We offer our sincere congratulations.

THE TREATMENT OF MALARIA: THE GERMAN EAST AFRICAN EXPEDITION.

IN an article on the opening page of this issue Major J. Pratt Johnson and Major Kenneth Gilchrist formulate in a concise and closely reasoned statement the conclusions they have arrived at from a statistical inquiry into the results of treatment and blood examination of a large number of cases of malaria contracted in the course of the campaign in German East Africa. The epidemic appears to have been of severe type, with a large proportion of heavy infections, both with malignant and benign tertian parasites, and the article will well repay a careful perusal. The main features of malaria in East Africa do not appear to be essentially different from those observed during the war in other malarial districts. Thus there is to be found in the article evidence of a growing dissatisfaction with the method of treatment by comparatively small doses of quinine, and the gradual realisation of the good results to be obtained by increasing the dose to at least 30 gr. per day. The advantages of the latter system are seen in a shortening of the average period during which it is found necessary to keep the patients in hospital, and in a substantial reduction in the number of cases in which blood films are found positive on a second examination after an interval of eight days, with a lessened frequency of relapses and a diminished risk of grave consecutive anæmia. The authors found that, in order to attain a given standard of clinical fitness, no longer a stay in hospital was necessary for malignant tertian cases than for those of benign tertian infection; they regard this as due to the fact that the greater initial obstinacy of malignant tertian cases is counter-balanced by the special tendency of benign tertian infections to relapse. On the other hand, cases of combined infection with both types of parasite were more resistant to treatment and needed hospital treatment for a period on the average nearly half as long again in order to attain a similar degree of fitness. Comment is also made on the retarding influence of syphilis, and attention is drawn to the frequency of relapses and severe anæmia in cases where a syphilitic infection is combined with that of malaria. The routine treatment which eventually came to be adopted for cases of ordinary severity was 30 gr. of quinine in solution daily for three weeks, followed by 20 gr. daily for a month, and then 10 gr. daily for two months. No reference is made to the administration of quinine by channels other than the mouth, nor is any distinction drawn between the value of quinine in primary and relapse cases; a note on the experience of the authors on these points would have been of interest. Their statement as to the limitations of quinine treatment, which they describe as being not more than palliative, will receive the sympathetic endorsement of clinical workers in other malarial districts, though an exception might possibly be made in the case of primary malaria treated with larger doses than those stated.

An examination of the figures relating to the frequency of relapse shows that the most intractable type of malaria from this point of view is a mixed infection with benign and malignant tertian parasites. Of such cases relapses occurred in a percentage of 39·4. The percentage of relapses in simple benign tertian infections was 23·8, while in malignant tertian infections the relapse incidence was as low as 11·2 per cent. The statistical value of these figures is weakened by the fact that the treatment factor was a varying quantity for individual cases; the average daily amount of quinine administered during the interval preceding the relapse varied from 20·6 gr. to 23·0 gr., and presumably the actual amount given in individual cases varied within even wider limits. The difficulty of securing a constant treatment factor is obvious, but conclusions based on observations in which this condition is not provided for lack precise value; a series of observations on cases receiving identical treatment might have been devised and would have carried greater weight. The views expressed by the authors on the influence of quinine in determining the production of crescent (sexual) forms of the malignant tertian parasite are ingenious, but further observations are needed before they can be regarded as forming more than an interesting speculation. The conditions which determine the production of sexual forms of the malaria parasites are far from being fully understood, and that quinine is one of the factors which may create an environment so menacing to the asexual forms that, through a process of self-preservation, crescents are produced in large numbers is a hypothesis that remains to be proved, though the authors' observations constitute an important addition to the study of the problem.

BACILLARY DYSENTERY WITH MEMBRANE IN THE VAGINA.

Dr. I. I. Lemann has recently reported[1] a complication of bacillary dysentery which does not appear to have been observed previously—membrane in the vagina with œdema of the abdominal wall.

A married woman, aged 48 years, was seen in consultation on Nov. 15th, 1919. On the 3rd she ate a cream puff which did not seem fresh. Severe pains in the epigastrium and diarrhœa began next day. She became so much worse that all food by the mouth was stopped. On examination she had improved, but her face was pinched, the temporal fossæ were sunken, and generally she looked prostrate. The stools were frequent and consisted of extremely offensive bloody mucus. She had vomited only once, though she suffered greatly from nausea. There was marked œdema of the abdomen, which was slightly greater in the right upper quadrant. The liver was felt three inches below the ribs. At the vaginal entrance a roughened corrugated elevation was felt. The vaginal walls and cervix felt œdematous. On inspection with a speculum the elevation proved to be due to a thick, tenacious, dirty-grey membrane, which was pulled off with difficulty, leaving a bleeding ulcer. On the cervix there were an erosion and membrane. Rectal examination was negative. The blood gave a strong agglutination reaction with the Shiga bacillus. This bacillus was cultivated from the vaginal membrane. Microscopical examination of the stools showed pus, blood, and epithelial cells. Treatment consisted in a liquid diet without milk, duodenal irrigations with sodium sulphate solution by means of the Jutte tube, irrigations of the vagina thrice daily with 1 in 1000 permanganate solution. Improvement began almost at once, and the symptoms disappeared in three weeks.

It is noteworthy that the vaginal membrane corresponded exactly with that present in the bowel in dysentery. Thus the bacilli acted on the vaginal mucous membrane in the same way as on the intestinal. How were the bacilli introduced into the vagina? Probably their source was the rectal discharge. This suggestion is borne out by the fact that the inflammation was most intense at the vaginal entrance. In this connexion the view of Flexner and Sweet as to the mode of production of membrane is interesting. They say that the bacilli may abound in the small intestine, where no lesions may be found, but that they give rise

[1] Journal of the American Medical Association, Dec. 18th, 1920.

to toxins, one of which acts on the nervous system, the other on the lower bowel. The excretion of the toxin causes exudation of lymph into the submucosa, later into the mucosa, leading to ulceration. If the intestinal membrane is produced by excretion of toxins, may not the vaginal be produced in the same way? Another theory is that the infection may have been carried to the vagina by the blood stream. Cases of bacillary dysentery septicæmia have been reported. Of the œdema of the abdominal wall Dr. Lemann can give no explanation. He considers it analogous to the œdema frequently observed on the thoracic wall over empyemata and over abscesses of the liver.

DR. BEATTIE CROZIER: MEDICAL PHILOSOPHER.

THOUGH it was neither in the practice nor in the scientific advancement of medicine that Dr. Crozier achieved his fame, his training had a profound effect on his subsequent activities. While in his early youth he derived inspiration from the study of phrenology, his medical studies directed his reading into more scientific channels, and the study of books by Darwin and Spencer altered his whole scheme of life. On his qualification at the University of Toronto in 1872 he decided to leave Canada, where he was born and had always lived, for England, where he settled nominally as a medical practitioner. His real work, however, rose out of his search among the philosophers of all ages for a school of thought which would satisfy his own aspirations while harmonising with some of the then new teachings of Herbert Spencer, whose materialistic outlook he could never accept. The middle period of his life Crozier spent in the study of the history of intellectual development, and his book on this subject, published in 1897, was an attempt to show that the laws governing the rise and fall of philosophies could be interpreted, and that at least some guidance for the future could be obtained by their study. In his later years, though his failing eyesight made work difficult, he thought and wrote on political economy. His final publication in 1917 was a survey of the economic, intellectual, and religious movements brought into being or influenced by the war. Dr. Crozier had a definite position in a field of thought not generally entered by medical men, and his high ideals and laborious efforts to further our national progress remain on record in his works.

STEPS TOWARDS BIOLOGICAL STANDARDISATION.

RECENT discussions on the best means of ensuring accuracy in dispensing have ignored the most important and probable source of danger in therapeutic agents administered to the public—that which is due to lack of standardisation and is beyond the control of the dispenser. Modern therapeutics has largely substituted for older drugs biological preparations, alkaloids, vaccines, and complex synthetic preparations which are not amenable to ordinary chemical tests. The need for the establishment of biological standards of measurement and of means for their ready application has been seen and emphasised by the Medical Research Committee since its formation in 1914. But the large amount of ultimate quantitative research required could not be undertaken in the war years except in so far as certain arbitrary standards of measurements had to be established at short notice, as, for example, those applied to salvarsan compounds sold in this country. At the end of 1916 the Committee issued a memorandum to the Government again urging the desirability of setting up official standards of value and authenticity for arsenical biological preparations, serums, and the like used in medical practice, and expressed the opinion that the absence of possibilities of control was not only discreditable to our national position in the world of science but a source of grave danger to the community. The Medical Research Committee urged strongly "the establishment of a Government laboratory for biological standardisation as needed for national purposes no less important than those of an analogous kind fulfilled by the National Physical Laboratory." A fuller statement of the need for such a laboratory was issued early in 1919, and various research schemes in preparation for its establishment have been centralised at the National Institute for Medical Research at Hampstead. A special committee on Biological Standards and the Methods of Biological Assay, consisting of Professor W. Bulloch, F.R.S., Dr. H. H. Dale, F.R.S., Professor G. Dreyer, Sir Walter Fletcher, F.R.S., and Professor C. J. Martin, F.R.S., has been appointed by the Medical Research Council to advise them on the promotion and coördination of studies of this kind. Moreover, Dr. Dale has been appointed to represent the Council on the Departmental Committee appointed last April[1] to advise the Minister of Health in the administrative and legislative measures that may be necessary. The report of this Committee should be issued shortly. Meanwhile, since the work in departments of bacteriology and pathology, biochemistry, and pharmacology at the National Institute is daily concerned with quantitative standards, the Council has invited Dr. Dale to serve as director of a Biological Standards Department. This department will have special relation to the central administrative organisation and supply of the separate departments of the Institute, and will, it is hoped, bring effectively into touch all the work likely to have a useful application to a national system of standardisation. For this the National Institute would seem to afford an appropriate permanent home.

GAS AND OXYGEN IN OBSTETRICS.

THE National Anæsthesia Research Society of America has issued a monograph on nitrous-oxide-oxygen analgesia and anæsthesia in normal labour and operative obstetrics. The publication is remarkable for several reasons. Its form is unusual, being more that of a presentation poetry-book than that generally associated with scientific productions; since this includes good paper, large clear type, plenty of space, and ornamental captions it is only to be commended. The matter is fairly comprehensive, including an account of the physiological actions of anæsthetics on pregnant animals and of blood changes due to various anæsthetics. At the same time there is a lack of definite practical details in the account of the applications of nitrous oxide analgesia to patients in labour. With the arrangements commonly in vogue in this country, where labour is conducted on a bed, and with the apparatus usually employed, nitrous oxide and oxygen is an extremely inconvenient anæsthetic. The patient's head is some distance from the edge of the bed and half immersed in a pillow. Doubtless our American confrères, who have employed nitrous oxide in labour far more freely than we have, have found means to increase its facility. A description of them would greatly have enhanced the practical value of this monograph. It is claimed for nitrous oxide that, so far from lengthening labour as other anæsthetics are accused of doing, it actually shortens the process. This is owing to the fact that during analgesia the patient will effectively coöperate. She is encouraged to assist the contraction of the uterus, and since this is prevented from giving her pain, she finds no obstacle to bearing down. Although self-administration of nitrous oxide and oxygen for the purposes of analgesia is possible, and has been often permitted by some of the writers, yet it seems clear that the use of this anæsthetic for labour necessitates the presence of a second medical man. Certainly this is the case if all the advantage possible is to be got from this particular agent. It may well be, indeed, that, as is suggested in the monograph, an ideal labour would be conducted through the presence of a skilled anæsthetist supplying the analgesia of nitrous oxide and oxygen for the pains of the first and the early part of the second stage, and full anæsthesia by the same drugs for the rest of the process. The baby is unaffected in ordinary labours conducted under nitrous oxide and oxygen.

[1] THE LANCET, 1920, i., 974.

PRIMARY MESOTHELIOMA OF THE PLEURA.

ACCORDING to Dr. Ernest S. Du Bray and Dr. F. B. Rosson,[1] of the University of California Medical School, who report an illustrative case, primary tumours of the pleura are of very rare occurrence, being considerably less frequent than primary growths of the lungs or bronchi. Patterson, in 1909, reported two personal cases and collected 96 others from the literature, but some of these could not be considered authentic owing to the incompleteness of the data. The disease occurs twice as frequently in men as in women, and the greatest number of cases are found between the ages of 30 and 40. It is a little commoner on the right side than on the left, but it may be bilateral. The origin of these tumours is still obscure, as it has not been decided whether they arise from the lining cells of the pleura or from the intima of the lymphatics. The writers are in favour of a mesothelial origin, and therefore prefer the term mesothelioma to carcinoma, although most of these tumours have been described under the name of endothelioma. The onset is usually insidious and the course progressive, the average duration of the disease being from six to nine months. Pain in the chest, which is usually severe and persistent, is the earliest and most significant symptom. The physical signs are in no way pathognomonic, but a persistent, rapidly reaccumulating hæmorrhagic pleural effusion is suggestive. The temperature usually remains normal throughout the disease, only exceptionally is there a slight evening elevation, which is usually due to a superimposed pulmonary infection. X ray examination does not afford much help in the diagnosis, but merely shows a massive pleural effusion in the great majority of cases. Cytodiagnosis is of very limited value, as numerous observers have found that in many cancerous pleurisies cancer cells are not present in the transudate, or, if present, are very difficult to recognise. Chemical study of the pleural effusion is also of little value. The most important and difficult diseases to exclude are pulmonary tuberculosis with hæmorrhagic pleural effusion and primary malignant disease of the lungs and bronchi. In a case which occurred in a physician, aged 40, the diagnosis made during life of tumour of the left pleura with extension into the lung and peritoneal cavity was confirmed by the necropsy.

MID-BRAIN LOCALISATION.

IN the current number of *Brain* Dr. S. A. Kinnier Wilson makes another of his masterly contributions to our knowledge of localisation in the central portions of the brain, recalling his former work on the symptomatology of the putamen, which led to the acceptance of a new symptom-complex—lenticular degeneration. In the present article he correlates the clinical findings in cases where cortical control is partially or completely removed, with the results of experiments by Professor C. S. Sherrington and others designed to effect this removal. The result of his investigation may be summarised as follows. When cortical control is removed completely from the rest of the nervous system by experimental or natural lesion the body and limbs assume a characteristic attitude; the limbs become rigidly extended, the hands become extensor-pronated, there is some degree of opisthotonus and retraction of the head. Further, the removal of cortical control may be (*a*) incomplete or (*b*) intermittent. In the former case the resultant attitude will present only partially the postural features of decerebration, while in the latter there will be temporary accentuation of those features—i.e., the occurrence of tonic fits due to "attacks of decerebration." A critical analysis of the records of experiments leads Dr. Wilson to the provisional conclusion that the red nucleus, with its cerebellar, thalamic, and spinal connexions, is the "centre of this attitude or posture-producing mechanism." Further, that the "decerebrate attitude of mesencephalic origin is maintained by afferents reaching its source by spino-cerebellar paths and inhibited by stimulation of a ponto-cerebellar path via the neighbourhood of the vermis." Review of clinical material in the light of this theory results in simplification of exceedingly diverse phenomena. Tonic spasm in submeningeal or intraventricular hæmorrhage, meningitis, hydrops ventriculi, the well-known "cerebellar" attitude, the characteristic position of the hand in chorea, in athetosis and in hemiplegia, opisthotonus in tetanus, and even in hysteria are thereby all reduced to their common denominator—decerebration, complete or partial, permanent or temporary. The starting point of the train of thought was a passing allusion by that seer of neurology, Hughlings Jackson, to what he called "tetanus-like seizures" and "fragments of the tetanus-like condition." It appears that Dr. Wilson has succeeded in discovering for us the underlying significance of yet another of Hughlings Jackson's flashes of insight, many of which were given to the medical world in our columns under the general title "Neurological Fragments."

[1] Archives of Internal Medicine, December, 1920.

PHYSIO-THERAPEUTICS IN AMERICA.

THE noteworthy feature of the meeting of the American Therapeutic Association, reported in our present issue, was the importance ascribed to physiotherapy by those who contributed papers and took part in discussions. Treatment by electrical methods formed the subject of the greater number of the papers. Four authors contributed papers on actinotherapy, and treatment by radium needles was considered in one paper. Only in five contributions was treatment by methods other than physical proposed. Various standing committees presented reports at the meeting conveying suggestions and recommendations regarding the uses of various physio-therapeutic agents, including the direct current, rhythmic currents, mechanical vibration and exercises, and hot and tepid baths. No entirely new or previously untried physio-therapeutic method was described, but there were some interesting contributions which will attract the attention of workers in physio-therapy in this country. One of these deals with the use of diathermy and the galvanic current for treatment of occlusion, partial or complete, of the cerebral vessels. In another the slow sine wave alternating current is recommended for the treatment of fæcal impaction of the sigmoid flexure; Dr. F. H. Morse maintained that symptoms which were often attributed to catarrhal salpingitis, uterine displacement, or hæmorrhoids, were frequently the results of sigmoid impaction. The treatment of inflammation of the bladder, uterus, and sigmoid flexure by injecting them with argyrol and then passing the galvanic current through the inflamed parts was described by Dr. C. S. King, who claimed that better results could be obtained by the combined treatment than by either method singly. Treatment by diathermy seems to be increasing in popularity; the contributions on this subject dealt with the non-surgical uses of diathermy. The use of electrical methods for obtaining mechanical effects, such as contraction of muscle and the removal of inflammatory products, formed the topic of other contributions. Apart from the good results obtained, the use of electricity for the various diseases considered at the meeting appears to be rational and applied in the endeavour to obtain known chemical and physical changes and procure therapeutic results by means of these changes.

Lord Cave is to preside over the committee appointed by Dr. Addison to enquire into the financial position of the voluntary hospitals.

Dr. Constantin Daniel, Professor of Pathological Surgery at the Faculty of Medicine of the University of Bucharest, has been transferred to the recently created chair of clinical gynæcology.

Dr. Cyril Hartley Durrant, chief medical officer to the Presidency of Saint Christopher and Nevis, has been appointed an official member of the Legislative Council of that Presidency.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Health of Belfast.

Dr. H. W. Bailie, medical superintendent officer of health, has published some figures dealing with the health of the city to Nov. 27th, 1920. The total deaths numbered 7450, as against 7278 in the previous 12 months, representing a death-rate of 18 per 1000, as compared with 17·9 in 1919. The deaths from phthisis show a substantial reduction in the previous year, the total being 774, a rate of 1·9 per 1000, as against 853 deaths, a rate of 2·1 per 1000, in 1919. This rate is the lowest recorded in Belfast since regular records were available. In 1899 the rate was 3·2 per 1000. The fall began in 1907, when the rate was 2·5 per 1000. There was a continuous fall until 1912, when the rate was 2 per 1000. From 1915 the rate steadily increased for three years, being 2·17 in 1916, 2·4 in 1917, and 2·7 in 1918 (the influenza year). The decline in 1920 is substantial and affords ground for congratulation; it shows that the antituberculosis crusade has not been in vain. Scarlet fever still continues very prevalent, the number of cases in 12 months being no less than 2334, as compared with 2793 in the previous 12 months. The disease continues to be of a mild form, but the attempts to check its excessive prevalence have been unsuccessful. There were 291 cases of diphtheria notified, 218 of typhoid, and 187 of erysipelas, as against 234, 110, and 149 respectively in the previous year. The deaths from zymotic disease totalled 749, representing a rate of 1·8, as against a rate of 1·5 in 1919. Infant mortality continues high. The rate was 130 per 1000 as compared with 113 in 1919, 144 in 1918, 130 in 1917, and 113 in 1916. These figures are disappointing in view of the considerable efforts put forth in Belfast to protect child life in the form of babies' clubs, ante-natal clinics, &c. The large amount of female employment is no doubt a factor. All the evidence goes to show that the most fundamental factors in reducing infant mortality are good mothering and attention to the diet and hygiene of the infant. In many counties in Ireland the infant mortality-rate is from 60 to 70 per 1000—one of the lowest rates in the world—in spite of a relatively low standard of housing and material comfort. Mother-care is the explanation. Large cities everywhere take a large toll of infant life, more especially when many avenues of employment are open to women.

"83rd (Dublin) General Hospital."

The annual dinner of the Dublin unit of the 83rd General Hospital was held on Jan. 8th at the Royal College of Surgeons, under the chairmanship of Sir William Taylor, who, nearly five years ago, while President of the College, organised the unit. The members had as their guests General R. H. S. Sawyer, late A.M.S. (retired), who, during the greater part of the time the unit worked at Boulogne, was D.D.M.S. of that area, and Mr. Alfred Miller, the Registrar of the College. Mr. Edward Taylor, the present President of the College, himself a member of the unit, was kept away by illness, but nearly all the other members of the unit were present, and a pleasant evening was spent, reminiscent of the happy comradeship which existed while the unit was on active service. General Sawyer, as the immediate authority of the service in touch with the "83rd General Hospital," spoke highly of the medical and surgical work performed in the well-known huts overlooking the harbour at Boulogne.

The late Dr. John F. Knott.

By the passing away of Dr. John Knott on Jan. 2nd Dublin medicine has lost one of its most interesting figures, and the world of medical literature a prolific and racy writer possessed of an extraordinary knowledge of the history of medical science. After a distinguished career in the school of the Royal College of Surgeons and in Trinity College, and after visiting many continental centres, Dr. Knott settled in Dublin a generation ago as a private medical tutor or "grinder." Many of the most distinguished Dublin students of the "eighties" passed through his hands. He edited the third edition of Mapother's "Human Physiology," and he contributed largely to the periodical literature any time this 40 years, choosing topics usually from medical history. He made particular studies of the final illnesses of Lord Byron and of Napoleon. He had little belief in modern developments of medical science, and loved to have a tilt at such orthodox doctrines as that of the bacterial origin of infective disease. He was a great lover of books, and he must have left a valuable collection.

Jan. 10th.

SWITZERLAND.

(FROM OUR OWN CORRESPONDENT.)

The Medical Profession and the Sickness Insurance Unions.

THE relations between the medical profession and the sickness insurance unions is a subject which gives rise to much anxiety in our medical world. Sickness and accident insurance now covers a very wide field, but not in the same proportion in different parts of the country. In Geneva and Lausanne, with their highly individualistic populations, the sickness insurance unions are not nearly as popular as, for example, in Zurich and Basle. In Basle, which has 140,000 inhabitants, over 100,000 are members of the unions; these include the whole of the working class and a considerable part of the middle classes, and thus only some 30,000 people remain under private practice. As the Swiss Federal Insurance Act stipulates the free choice of doctor, practically all practitioners of the towns are attached to these unions, and, in fact many are drawing their chief income from them. Up to the end of 1920 the fees were Fr. 1.50 for each consultation in the practitioner's house and Fr. 2.50 for each visit. Now the charges are Fr. 2 and Fr. 3 respectively. Of the different sickness insurance institutes in Basle the Municipal Sickness Insurance Society is the strongest, as it is subsidised with public funds. The monthly premium is Fr. 2.50. But according to the income of the member this premium is partly or wholly paid by the State. Of 66,000 members, 14,000 only pay the full premium. The members have the right to free medical treatment, including drugs, hospital, and sanatorium charges. The average cost of each member to the society is Fr. 23.70. With the high cost of living and the very low premiums it is probable that more and more people will join the societies which are becoming increasingly powerful, and the decrease in private practice making the great mass of the practitioners entirely dependent on them. The whole system of sickness insurance is therefore being critically scrutinised by the profession.

For the discussion of all these questions a special weekly paper has been founded. The *Schweizerische Aerztezeitung für Standesfragen* (*Bulletin Professionel des Médecins Suisses*) is edited under the authority of the Executive Council of the Swiss Medical Association, and appears both in German and French. It is sent free to every practitioner in the country. Such an organ is doubly wanted, as a new Bill covering State insurance against old age and invalidity will soon be brought before Parliament. At the same time the old organisation of sickness insurance is awaiting revision, and it is highly necessary that the profession should have a voice therein. As Dr. Haemig, of Zurich, has recently pointed out in a well-documented article in the *Schweizerische Medizinische Wochenschrift*, sickness insurance has its very serious drawbacks. Dr. Haemig draws his conclusions from statistics of the Bricklayers' Insurance Union of Zurich. In 1894 the average member of the union had annually four and a half days' of incapacity for work; in 1913, however, 13 days; and in 1917, 13. Influenza renders the statistics of the following years useless for comparison. In 1895, out of 100

members, 25 were recorded as incapable of work; in 1913 more than 80; in 1917, 66. In the same period the claims on the fund arising from chronic diseases like tuberculosis or heart disease showed a decrease. The steady increase is due to more trivial ailments like pharyngitis, wax in ear, and so forth. This makes it clear that on the one hand the members, with gradually increasing frequency asked their doctor to certify them unfit for work, and, on the other hand, the doctors became more and more generous in notifying members as incapable of work. Such conditions have very serious economic consequences for the unions, and, further, they have a very deplorable effect on the psychical state of the people; ultimately they are apt to destroy in neurasthenics the incentive to work. Dr. Haemig sees the remedy first in the formation of a neutral control board and next in the insertion of a clause in the new Act that the daily insurance pay must in all cases be below the daily wage.

The Swiss Neurological Society.

The Swiss Neurological Society, under the chairmanship of Professor Robert Bing, recently held its annual meeting at Basle. The relation between the nervous system and internal secretion was the chief topic discussed. From the many other communications we may select for comment the studies of Professor Landau (Berne) on the brain of Gambetta preserved in Paris. It had been commonly stated that the brain of the great French patriot was abnormally small—only 1180 g. Landau found this to be false, the apparent small size being the effect of technical errors in its conservation. On the other hand, it appears that the centre of speech is enormously developed, an interesting fact, as Gambetta was notoriously lacking in the gift of oratory. Professor Hotz, director of the surgical clinic, spoke of the operation of sex-gland implantation, the so-called operation of Steinach, which has recently been advertised in the press. His experiments led Hotz to an entirely negative opinion, as he observed none of the results recorded by the originators of that operation.

Jan. 7th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Venereal Diseases among Women.

THE large amount of venereal disease in India and the frequency with which it is responsible for gynæcological trouble has been suspected for some time. The council of the Countess of Dufferin's Fund recently caused an inquiry to be made to discover how far this suspicion was correct and how far facilities for efficient treatment existed in women's hospitals. The result of the inquiry elicited the almost unanimous opinion of the medical men and women consulted that venereal disease was responsible for a very large proportion of gynæcological disease and a considerable proportion of the high infant mortality in India, and that facilities for modern treatment (at least in women's hospitals) were few indeed. The council then applied to the Government of India for a grant to enable it to organise post-graduate courses of instruction for medical women in the modern treatment of venereal disease. It also asked that medical women who had attended these or similar courses should be allowed to purchase necessary drugs from Government stores at reduced rates, and to have necessary pathological investigations done free of charge at Government laboratories. These proposals have been acceded to by the Government, and courses of instruction have been held at Deolali under the superintendence of Lieutenant-Colonel G. H. Frost, I.M.S., consulting dermatologist to the Government of India, during March, 1920. The courses last 12 days, and are well attended by medical women. The syllabus includes lectures, clinical demonstrations, instruction in the newer method of treatment, and a considerable amount of practical laboratory work. Courses for the coming year are now being organised, including two for medical women of the assistant-surgeon class.

Medical Aid in the Punjab.

In the triennial report on the Working of the Charitable Dispensaries in the Punjab for the years 1917, 1918, and 1919 it is stated that owing to the dearth of trained workers arrangements for medical relief in the Punjab are far from satisfactory. The report pays a tribute to the Punjab Medical School for Women, which is incorporated with the Woman's Christian Medical College, Ludhiana, and is the recognised Government school for the training of women for a medical career. This institution has continued to supply trained workers for employment in women's hospitals and dispensaries so far as it was in a position to do so. The number of non-medical students is still small, although the teaching and hostel arrangements leave nothing to be desired. Plans are under consideration for rebuilding the institution.

First Aid in Madras.

The executive council of the St. John Ambulance Association, Simla, has requested the assistance of the Madras Chamber of Commerce with regard to the formation of regular ambulance divisions for practical work in the mills and factories in the city. The Chamber has replied that classes in first aid have already been opened in several mills and have proved very successful, and that the movement will have the sympathy and encouragement of the Chamber.

Tibet Mission Medical Officer.

In response to several requests by the Dalai Lama and his Ministers that a British officer might be allowed to pay a friendly visit to Lhasa, the Government of India are sending Major R. S. Kennedy, I.M.S., as senior medical officer of the Mission.

AMERICAN THERAPEUTIC ASSOCIATION.

THE thirtieth annual meeting of this association was held in Atlantic City from Sept. 14th to 17th, 1920, with Dr. WILLIAM MARTIN, the President, in the chair.

Dr. EDWARD C. TITUS and Dr. FREDERIC DE KRAFT of New York read a contribution on the

Employment of Diathermy and Galvanism in Management of Sequelæ of Occlusion, Partial or Complete, and Rupture of Cerebral Arteries,

in which they referred to a report on the use of diathermy as an adjunct in the treatment of chronic syphilis published by them in the *International Journal of Surgery*. In this report they showed that there was induced a marked heating of all the tissues, followed by active hyperæmia, stimulation of the metabolic processes and increased elimination, local and general, profuse diaphoresis, and augmented secretion of urine. The conditions produced in the tissues were conducive to absorption of inflammatory deposits irrespective of their character. Later results had been equally satisfactory in various syphilitic manifestations. Extensive experiments with galvanism had shown that it improved the nutrition of the coats of the blood-vessels as well as of the surrounding tissues, and beneficially modified vascular tone. It would thus be seen that by the combined use of diathermy and galvanism effects were obtained which could not be derived from the application of either of the currents individually. During the past four or five years they had employed this combined method to remove as far as possible the results of cerebral hæmorrhage or embolism, also in cerebral endarteritis, nervous breakdown, and cerebral neurasthenia, due to impaired nutrition of the brain because of deficient circulation. The method used was as follows: An electrode, 2 by 4 inches, or slightly larger, was moulded to conform to the contour of the forehead. Under this electrode, in direct contact with the head, were placed 30 layers of surgical gauze, saturated in salt solution. The gauze pad was slightly larger than the metal electrode, so that none of the bare

metal touched the skin. The electrode was then securely fastened over the gauze by means of a roller bandage and connected to the negative pole. The patient was then placed on a suitable table while the current was administered. A second electrode similar in size and construction to the one just described was placed on the neck just below the line of the hair. This electrode was connected to the positive pole and held in position by a suitable pillow. A current from a battery had proved the safest and most suitable for galvanisation of the brain. If a wall cabinet current was used it should have a volt-meter as well as a milliamperemeter. It was always well to begin with a mild current, about 1 to 3 milliamperes and 5 volts, and the current should be turned on and off slowly. The strength of the current with the low voltage (5) might be increased slowly to 10, 20, or even 30 milliamperes. The results of this galvanisation were better and more rapid if it was preceded by diathermisation of the brain, which seemed to prepare the way for the galvanic current by improving the circulation and the lymphatic flow.

Dr. FRED. H. MORSE presented a paper on

Sigmoid Impaction: Its Significance, Pathology, and Treatment,

illustrated with lantern slides. He stated that the sigmoid flexure was a field that urgently demanded relief. Dr. Morse was confident that many patients being treated for cystitis, prostatitis, hæmorrhoids, uterine displacements, and so-called catarrhal salpingitis were really suffering from displacement of the pelvic colon. If the distortions and bends with which we had to deal in sigmoid impaction and the conditions about the splenic flexure and descending colon were to be treated successfully, therapeutic effort must be carefully guided with a view to the effect desired. Direct rectal application must be made to the seat of threatened obstruction, and this could be done safely and intelligently since the use of the alternating current had been brought under control. A large amount of muscle stimulation could now be used without any possible harm to the inflamed mucous membrane. The results demonstrated on the screen, the speaker declared, were not merely hypothetical theories but legitimate clinical realisations.—Dr. CORA SMITH KING and Dr. ELNORA C. FOLKMAR both testified to the value of Dr. Morse's technique.

Dr. ELNORA CUDDEBACK FOLKMAR presented a communication on

Diathermy as a Therapeutic Agent, Especially in the Treatment of Sprains, Fractures, Adhesions, and Chronic Stiff and Painful Joints.

She stated that a therapeutic measure for the purposes of this paper was defined as one which aided nature on her own plan to restore physiological function which for some reason nature had not been able to initiate, or did so only in a feeble way. Diathermy was such an agent. Nature's cardinal method of restoration was the production of heat—inflammation locally, fever systemically. No injury, whether traumatic, chemical, thermic, or bacterial, could be recovered from except through the agency of heat, whether the heat originated within the system or was induced by external agents. Diathermy increased the temperature of the tissue, dilated the blood-vessels by direct influence, and increased the blood-supply to the area treated; it quickened the chemical processes of metabolism, and thus aided nature in making a cure. It relieved pain and tenderness by relieving pressure from exudates; it softened tissues and made them better conductors of low-frequency currents and more susceptible to mechanical treatment, such as vibration and massage. Dr. Folkmar described in detail the technique of diathermy as applied in the treatment of trauma, visceral adhesions, and chronic, stiff, and painful joints. She followed diathermic treatment with a surging faradic massage, and then gave what she had called the "faradic grip," which consisted in slowly moving the secondary coil over the primary until the patient gave an involuntary sound. This was repeated five or six times, and was followed by passive and active attempts at motion. Diathermy was destined to become quite as important to the orthopædist as splints and bandages. The odontologist must call on diathermy to assist nature in repair processes, as he now called on radiology to confirm his diagnosis. The surgeon must use diathermy in his fracture cases to promote rapid union and to relieve pressure and pain, and must take cognisance of diathermy as a valuable agent for the preliminary and subsequent treatment in pelvic and abdominal operations to prevent the formation of adhesions. The layman already demanded an X ray as a confirmatory diagnosis. He would soon demand diathermic treatments.

Dr. WILLIAM L. CLARK read a paper on

The Rôle of Radium Needles in the Treatment of Malignant Disease.

He described his early experiments in attempting to devise radium needles that would be suitable for the treatment of malignant disease. He was told that the secondary rays from the needles would produce necrosis and sloughing. On investigation he found it quite true that sloughs were formed from the secondary rays in dry skin, but in malignant disease this did not occur unless the exposure was too prolonged. This was explained by the fact that in malignant disease the moisture around the needles absorbed the secondary rays. Unless the tissue was very much devitalised, one could leave the needles in for 24 hours without causing sloughing. Radium capsules and plaques had a distinct field of utility, but the needles had made many things possible which were not possible without their use. The removal of a malignant growth from the mouth and of metastatic glands in the neck was pure folly because the migratory cells were not taken into account. The migratory cells in the ducts should be treated, not necessarily with the needle, because they might be reached by the element properly filtered. The needle might be inserted right into the gland, which was absorbed, inhibited, retrogressed, and disappeared. Where the glands had broken down it might be possible to excise them and then insert a radium tube. They had had cases treated in this way in which they appeared to have inhibited malignant conditions. Lantern slides were exhibited showing the use of radium needles in cancer of the stomach following gastro-enterostomy, squamous epithelioma of the lip, and a malignant growth of the mastoid region which when treated with the radium needles showed regression without great destruction. Results were also shown in other malignant conditions.

Dr. CORA KING read a paper on

The Continuous Current in Inflammatory Conditions.

She spoke more particularly of inflammatory conditions of the sigmoid, bladder, uterine endometrium, and the cervical and vaginal membranes. In the treatment adopted by her the sinusoidal current was used, with one pad under the sacrum and the other over the abdomen, as strong as the patient could comfortably bear it. When the muscles were well synchronised, with the bulb in the rectum but without a rectal tube, a bland soapsuds enema was given. In the proper posture gravity would carry the fluid to the transverse colon. After the patient had evacuated the enema she was placed in the knee-chest position, and two drachms of argyrol, 25 per cent., were introduced into the rectum. The uterus was then tamponed with 25 per cent. argyrol, and if there was bladder trouble argyrol was introduced into the bladder. The patient was then placed in the dorsal decubitus, and large pads were placed across the pelvis, low down over the pubic bone. The galvanic current was then passed to easy tolerance, three to five milliamperes, gradually raised to ten milliamperes in the course of 18 to 20 minutes. Dr. King considered that uterine inflammatory conditions, when not gonococcal in origin, were mostly due to extension of inflammatory conditions in the colon. At any rate, under this treatment the patients made remarkable improvement. Dr. King said she had used argyrol and the galvanic current separately, but neither alone gave the results that were obtained by this combination.

Public Health.

REPORTS TO SANITARY AUTHORITIES.

Newport Port.

IT is possible that our national system of supervision of the housing of seamen is, in part at least, responsible for the defective conditions far too frequently found on our merchant vessels. The whole question is very ably discussed by Dr. J. Howard-Jones in his 1919 annual report to the Newport Port Sanitary Authority. The Board of Trade is the department responsible for the supervision of the design of ships, including those parts of the vessel used for the accommodation of the crew. Without wishing to criticise a Government department that has done excellent work in many directions, we agree with Dr. Howard-Jones in thinking that the Board of Trade has not yet fully realised the great importance of marine hygiene, as vessels are still being built on which the accommodation provided for the crew is ill-designed and in many respects unsatisfactory. Often great improvement could have been effected by alteration of the design before the vessel was built, and such alteration would, in many cases, not have involved much, if any, increase in the cost of construction. Dr. Howard-Jones states that the crew spaces provided by some shipowners are far in advance of the requirements, and even of the recommendations of the Board of Trade, while many vessels which have recently been certified by the Board of Trade contravene the regulations of that department in many particulars. The present regulations of the Board of Trade are, in Dr. Howard-Jones's view, too indefinite, with the result that builders interpret them differently. In the past the British standard has been accepted by most nations, but some of them are now demanding in many respects a higher standard of hygiene, and the progress in Britain has not kept pace with that made in some maritime countries of Europe. In regard to cubic space the British minimum is 72 cub. ft. and 12 sq. ft. of floor space per man, where wash-houses and mess-rooms are provided, whereas the Norwegian, Swedish, and Australian authorities require no less than 140 cub. ft. and 18 sq. ft. floor space. Again, the British regulations require a sufficient height in cabins for men of ordinary stature to stand and move about in an upright position—that is to say, at least 5 ft. 6 in. between the floor and under surface of the beams. No provision is made for the comfort and convenience of taller men. They must accommodate themselves to the height of the quarters or remain on shore, where they are provided with bedrooms not less than 8 ft. in height.

The accommodation for seamen on board Scandinavian and American vessels is often far superior to that on the average British ship. In this connexion Dr. Howard-Jones gives an instance which recently came under his observation in which a British firm of shipbuilders built two vessels, one for a Norwegian and the other for a British company. He supplies details of the accommodation for the crew on the Norwegian and British vessel respectively, the former being in nearly every respect much superior to the latter.

Dr. Howard-Jones expresses the view that the control of shipbuilding by the Government of this country is carried on in a very unsatisfactory manner in so far as marine hygiene is concerned, and, in support of this contention, he alludes to the fact that the evils to which he has so frequently drawn attention in his annual reports are still being perpetrated without interference by the Board of Trade. It should be understood that vessels entering our ports in the ordinary course of trade are subjected to regular inspection by the medical officers of health and sanitary inspectors employed by the port and riparian sanitary authorities, with a view to the detection of conditions prejudicial to the health of the crews. Much excellent work has been done in this connexion and minor defects such as the lack of adequate ventilation or faults arising from disrepair, are generally at once rectified when brought to the notice of the shipowners or their agents. But, where much structural alteration is required in order to remedy the defects found, it is difficult for the officers of the port sanitary authority to take effective action, more especially in the case of a British vessel which has been certified by the Board of Trade as complying with their regulations. In such circumstances, the shipowners might very properly object to carry out the requirements of the Port Sanitary Authority on the ground that the vessel conformed in all respects with the regulations of the Government department responsible for the supervision of the design of British vessels. Obviously the proper time to draw attention to such defects is not after the vessel is built, but before she is built; and, if satisfactory results are to be obtained, it is essential that detailed plans of the officers' and men's quarters should be submitted for approval to persons possessing extensive knowledge and experience of marine hygiene previous to the construction of the vessel.

Dr. Howard-Jones makes some valuable suggestions with the view of remedying the existing state of affairs. He points out that the Ministry of Health was established to coördinate and improve public health administration in the country, yet supervision of the housing of seamen on board ship has not been included among the present duties of the Ministry. Marine hygiene is essentially an international question, and there would be much advantage if international standards were established. He also gives details of the improvements which he would like to see introduced in officers' and men's quarters on board tramp steamers. As these are the result of many years' patient study of the subject, they should receive the careful consideration of all interested in the welfare of our merchant seamen.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

County Palatine of Chester.

IN his annual report for the year 1919 Dr. Meredith Young refers to the increased number of deaths resulting from, or attributed to, malignant diseases during recent years. No fewer than 747 deaths were attributed to these causes, as compared with 678 in 1918 and 711 in 1917. The cancer death-rate per 1000 of the population was 0·70 in 1900, 0·77 in 1905, 0·84 in 1910, 1·25 in 1915, and 1·24 in 1919. In connexion with the cancer problem, it has occurred to many that there might be advantage in making the disease notifiable in a number of selected districts with a view to careful inquiry being made by trained observers into the circumstances associated with each case. Valuable information respecting the natural history of the malady would thus be obtained, which, together with laboratory research, might result in elucidation of some of the questions concerning the cause of the disease and the factors which predispose to attack.

Ten cases of small-pox occurred in the urban district of Lower Bebbington during 1919. These were attributed by the district medical officer of health, Dr. J. B. Yeoman, to spread of infection from the Liverpool Port Sanitary Authority's hospital at New Ferry. Dr. Meredith Young, though not a believer in the aerial transmission of small-pox infection, states that there are numerous other ways in which the disease may be carried from a small-pox hospital to adjoining premises, and adds that the outbreak in question is by no means the only one in which small-pox has appeared in the vicinity of the hospital under circumstances which appeared to point to the hospital being the direct or indirect source of infection. The deaths recorded as due to influenza in 1919 numbered 884, or approximately half the number which occurred during 1918. In some areas it was found practicable to enrol a number of women possessing a reasonable amount of skill in home nursing whose services were available, under professional direction, for the nursing of patients during widespread outbreaks of the disease. This system has much to commend it, particularly now when the exigencies of war have produced a large number of educated persons who have gained a fair amount of nursing experience. Work of this nature is suitable for those who have assisted to nurse the sick and wounded under the schemes of the Order of St. John and the British Red Cross Society.

The annual report contains, as usual, a section devoted to the important subject of maternity and child welfare, written by Dr. Jane R. Shaw, the lady assistant medical officer of health. The proportion of trained midwives practising in the county now amounts to 56 per cent., which shows a considerable falling-off of the "bona-fide" midwife. Great difficulty is still experienced in obtaining midwives to fill the places of those who retire, and this will always be the case until both the status and remuneration of the midwife are made commensurate with the responsible nature of the duties which she has to carry out. In certain districts midwives have been appointed each at a salary of £100 per annum, while in a number of other areas the services of nurse midwives have been obtained by arrangement with the County Nursing Association. This plan has been found to work most satisfactorily. The county maternity and child welfare staff comprises a lady assistant medical officer of health and 26 whole-time and one part-time health visitor. With three exceptions each health visitor is responsible for the visiting of children under 5 years of age. She also assists in the work of medical examination of school children, and in the treatment and prevention of tuberculosis, besides attending the maternity and child welfare centre in her particular area. The arrangements made for visiting infants during the period under review were similar to those of previous years. Cases attended by an untrained midwife were visited as soon as possible after the birth, and those attended by a doctor or a trained midwife were visited after the tenth day. The health visitors sent every week to the county medical officer of health a report of the work done during the preceding week, and a report, on special forms, of every baby visited and revisited. These reports are carefully scrutinised by the lady assistant medical officer of health and a duplicate of each form filed for future reference. During the first year of their age the babies are usually visited once a month, but it is found necessary in many cases to visit more frequently. During 1918, with one exception, the number of visits to notified babies under 1 year amounted to an average of ten visits per child, which was regarded as satisfactory. During 1919, however, the average fell to about six visits per child. This was due to the increased amount of tuberculosis and school inspection visiting that the health visitors had to do. Every branch of the health visitor's work is important, and if she is to devote sufficient time to each she should be given a much smaller area than is at present allotted to her. Such an arrangement would, of course, involve a considerable increase in the number of health visitors employed. In November, 1919, an antenatal clinic was opened as an experiment in this branch of the work. A specialist in obstetrics and gynæcology was appointed to attend at its fortnightly sessions. During the six months the clinic has been open 48 patients attended on one or more occasions, being sent by their own doctor or brought by the midwives engaged to attend the confinement. A complete history was taken in each case, the patient's condition being carefully investigated. The urine of every patient was examined, and where circumstances required pelvic measurements were taken. Advice was given regarding appropriate diet, exercise, and the general hygiene of pregnancy. In the event of any special medical or surgical treatment being necessary a letter was sent to the patient's own doctor on the subject.

It is obvious that excellent work is being carried on in Cheshire in connexion with maternity and child welfare, which will doubtless have important influence on the future health of the community.

City of Birmingham.

Dr. John Robertson's annual report for the year 1919 contains as usual much interesting material. He lays special emphasis once more on the importance of housing conditions in relation to health. In his opinion much still remains to be done in Birmingham to improve the health and social conditions of the people, and, in this connexion, the condition that overshadows everything else is the housing question. There are a large number of houses in the city where two or more families are living in the accommodation provided for one family. The shortage of houses is so acute that there does not at present appear to be any prospect of making up the deficiency for many years. If 2000 houses are built per year, it will not do more than meet the ordinary increase in population. Something more, therefore, is needed than 2000 new houses each year. In the meantime the old houses are getting into an increasingly defective condition. In some cases steps have to be taken to prevent parts of old dwellings from collapsing. In the ordinary course these houses would have been demolished at the rate of from 300 to 500 per annum, as they are old and dilapidated and the leases are running out. For the central areas of the city something more than mere house-building is required. It is most important that these districts should be subject to a modified form of town-planning, so that in time many of them, in which the conditions are at present degrading, may be brought to a standard commensurate with the minimum requirements for reasonable healthy existence. The arrears of work on housing are so great that, in Dr. Robertson's opinion, almost everything else in the way of city expenditure should give place to it. Having regard to the fact that Birmingham contains one of the largest industrial populations in the Empire, the health of the city is exceptionally good. The death-rate for 1919 was 13·0 per 1000; the infantile mortality-rate, 84; the phthisis mortality-rate, 1·10; the non-pulmonary tuberculosis-rate, 0·18; while the new cases of enteric fever gave a rate of 0·04 per 1000. Comparison of the health statistics of one community with those of other more or less similar communities is always interesting. For this purpose the general death-rate and infantile mortality-rate respectively of each of the eight largest towns may be given: Glasgow, 16·4 and 114; Birmingham, 13·6 and 88; Liverpool, 16·8 and 107; Manchester, 14·0 and 95; Sheffield, 13·7 and 96; Leeds, 16·0 and 112; Bristol, 13·1 and 82; Edinburgh, 16·8 and 117. It will be noted that the general death-rate and infantile mortality-rate of Birmingham are lower than the corresponding rates in any of the other towns with the exception of Bristol.

On the subject of the treatment and prevention of tuberculosis Dr. Robertson thinks that the persons who hold somewhat gloomy views as to the success of existing methods do not appreciate the following important facts—namely, that tuberculosis is mainly a very chronic disease, and that measures taken to-day will only be apparent in their effects in some years to come. In most areas what has been done is so trivial in amount that it could not be expected to substantially reduce the prevalence of such a disease. "Notification" has brought to light and labelled many persons whose deaths would have been classified under other headings but for notification. Four years of war have profoundly influenced many lives. War conditions put a strain on the soldier and the civilian alike, lowering resistance and making those with any nidus of infection succumb to it. The Birmingham figures were worse during the war years than before, so far as deaths go. Immediately the war terminated they commenced to improve. There are now fewer deaths than before the war and there are far fewer new cases. As regards the result of treatment, there is reason to value what has been accomplished. Treatment is directed to prevent infection spreading, and to the arrest of the disease in the individual. There is no doubt that fewer cases in young adults are now met with. In connexion with the arrest of the disease, the following figures for the first year of complete notification (1913), when a large number of chronic and severe cases came on the register for the first time, show what may be considered as the worst results, but even these are very much better than those reported from towns which have dealt with tuberculosis in a half-hearted way. The total number of cases of pulmonary tuberculosis notified in 1913 was 4146, and the number whose history has been followed up to April, 1920, was 3104. Of these 3104 cases, 1371, or 44 per cent., have died during the past six years; 1540, or 50 per cent., are doing usual full-time work,

while 80 are doing part-time work; 89 are not able to do any work at all and 24 have no occupation. There were 935 deaths registered during 1919 as due to cancer. This is equal to 1 in every 13 deaths occurring during the year. Of persons 20 years of age and over the deaths during 1919 represented 1 in every 9 deaths. The total number of deaths attributed to cancer in each year since 1911 were as follows: 1911, 748; 1912, 791; 1913, 893; 1914, 773; 1915, 885; 1916, 897; 1917, 912; 1918, 883; 1919, 935.

The excellent work carried on in Birmingham in connexion with maternity and child welfare still continues and the year 1919 showed a lower infant mortality-rate than any previous year on record—namely, 84 per 1000 births. The rates in previous years were as follows: 1871–75 (old city area), 182; 1876–80, 164; 1881–85, 161; 1886–90, 173; 1891–95, 176; 1896–1900, 199; 1901–05 (extended city), 157; 1906–10, 131; 1911–15, 126; 1916, 104; 1917, 101; 1918, 99; 1919, 84.

City of Glasgow.

This is the first annual report issued by Dr. A. K. Chalmers since the commencement of the war, and it has reference to health conditions in the city during the six years 1914–19. Even a cursory examination of its pages shows the rapid progress that has been made in certain branches of public health work during the period under review. More particularly is this the case in connexion with maternity and child welfare, the treatment of tuberculosis, and the measures adopted for the prevention and treatment of venereal diseases. It is satisfactory to know that, despite the strain on the civil population during the period in question and the pandemic of influenza towards its close, which increased the death-rates of the fourth and first quarters of 1918–19 to quite unusual ranges, the average health of the population was fairly maintained, and the rates on the whole were lower than during any previous period of like duration. How much of this improved health was due to the more orderly lives of the civilian population, to the better feeding of children, and to reduced drunkenness may be matter of opinion and not readily demonstrable, but it was the uniform experience of the visiting nurses and others, whose daily work took them into the houses of the poorest of the population, that food and furnishings and habits were all improved.

The report contains an interesting preliminary statement respecting the results of an inquiry into the causes of stillbirths. It is frequently stated, and commonly accepted, that syphilis is a dominant factor among the causes of fœtal deaths, and the inquiry was instituted with the double purpose of ascertaining how far this is actually the case in children stillborn at full time, and also to learn what gross physical lesions were present in the stillborn children and whether they were of a character which made preventive treatment of the mother reasonably possible. The inquiry was conducted by Dr. R. M. Buchanan, the city bacteriologist, but it was not intended to report until a much larger number of examinations had been made, and the present preliminary statement was made in response to a request for information on the subject by the Scottish Board of Health. In summarising the results so far obtained by Dr. Buchanan, Dr. Chalmers states that as a cause of death at full time syphilis does not appear to be a predominant factor. There is some indication, however, that it is more frequently operative at earlier stages of pregnancy, as illustrated by the relatively large number of fœtuses in which its presence could be demonstrated in miscarriages occurring between the sixth and eighth month of pregnancy.

URBAN VITAL STATISTICS.

(Week ended Jan. 8th, 1921.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate population estimated at 18½ million persons, the annual rate of mortality, which had been 15·3, 15·1, and 16·6 in the three preceding weeks, fell to 13·9 per 1000. In London, with a population of 4½ million persons, the death-rate was 12·9, or 3·6 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 6·5 in Rotherham, 6·7 in Walthamstow, and 7·4 in Bury to 22·6 in Hastings, 23·2 in Halifax, and 24·5 in Sunderland. The principal epidemic diseases caused 231 deaths, which corresponded to an annual rate of 0·6 per 1000, and comprised 90 from infantile diarrhœa, 60 from diphtheria, 28 from measles, 26 from whooping-cough, 22 from scarlet fever, and 5 from enteric fever. The mortality from these diseases showed no marked excess in any of the large towns. There were 4608 cases of scarlet fever, 2588 of diphtheria, and 1 of small-pox under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 4817, 2642, and 1 respectively at the end of the previous week. The causes of 38 of the 4964 deaths in the 96 towns were uncertified, and included 4 each in Liverpool and Preston, and 3 in West Hartlepool.

Scottish Towns.—In the 16 largest Scottish towns, with an aggregate population estimated at nearly 2½ million persons, the annual rate of mortality, which had increased from 13·5 to 18·4 in the five preceding weeks, was again 18·4 per 1000. The 382 deaths in Glasgow corresponded to an annual rate of 18·1 per 1000, and included 11 from whooping-cough, 6 from infantile diarrhœa, 3 from diphtheria, 2 from small-pox, and 1 each from measles and scarlet fever. The 145 deaths in Edinburgh were equal to a rate of 16·9 per 1000, and included 14 from influenza, 2 from measles, and 1 each from scarlet fever, whooping-cough, and infantile diarrhœa.

Irish Towns.—The 139 deaths in Dublin corresponded to an annual rate of 17·1, or 9·8 per 1000 below that recorded in the previous week, and included 3 from infantile diarrhœa, 2 each from enteric fever and diphtheria, and 1 from whooping-cough. The 157 deaths from Belfast were equal to a rate of 19·5 per 1000, and included 6 from infantile diarrhœa, 3 from diphtheria, and 1 from whooping-cough.

The Services.

HYGIENE IN THE ARMY.

THE important part which hygiene plays in maintaining the efficiency of troops is emphasised in an Army Order just issued. Command Schools of Hygiene are to be established at Aldershot (when the transfer of the school at Blackpool is effected); Hertford Barracks, Hertford; Strensall Camp, near York; Dreghorn Camp, near Edinburgh; Hilsea hutments, Portsmouth; and Carrickfergus. These schools are to be permanent centres of instruction for staff and regimental officers and for regimental sanitary personnel; and they will maintain close liaison with neighbouring units in order to facilitate the demonstration of the principles of practical hygiene on model lines. Four classes for officers will be held annually, and the classes for regimental non-commissioned officers and men will extend over a period of three weeks. Classes for personnel of the Royal Air Force will run concurrently with the Army classes, and Territorial Force sanitary companies will be attached to the Command Schools for instruction during their period of training.

ROYAL NAVAL MEDICAL SERVICE.

Surg.-Cmdrs. R. C. Munday, T. W. Philip, M. H. Knapp, and J. A. L. Campbell have been placed on the retired list with the rank of Surgeon-Captain.

ARMY MEDICAL SERVICE.

The undermentioned Major-Generals retire on retired pay: L. E. Anderson and G. Cree.

ROYAL ARMY MEDICAL CORPS.

The undermentioned are placed on the half-pay list on account of ill-health: Lieut.-Col. G. J. S. Archer and Major H. S. Dickson.

The undermentioned relinquish the acting rank of Major: Temp. Capt. R. B. Wallace and Capt. and Bt. Major J. D. Bowie.

Capt. W. Walker to be acting Major.

The undermentioned to be temporary Captains: Temp. Lieut. H. J. Brink and E. Tanton (late temporary Captain).

Officers relinquishing their commissions:—Temporary Captains retaining the rank of Captain: G. Fildes, P. A. Dargan and H. J. H. Symons (on appointment to I.M.S.), R. Stephens, P. MacD. Little, and T. Sheehan.

Temp. Lieut. J. S. F. J. Kerr retains the rank of Lieutenant.

TERRITORIAL FORCE.

Capt. R. Phillips to be Major.

Capt. T. M. Jamieson, from 4th Southern General Hospital, to be Captain.

1st London (C. of L.) Sanitary Company: Major L. T. F. Bryett resigns his commission and retains his rank, with permission to wear the prescribed uniform.

INDIAN MEDICAL SERVICE.

The King has approved the retirement of the following officers: Lieut.-Cols. J. L. Macrae, G. T. Birdwood, G. H. Frost, A. Miller, and Col. P. J. Lumsden.

ROYAL AIR FORCE.

Capt. A. E. McCulloch relinquishes his temporary R.A.F. commission.

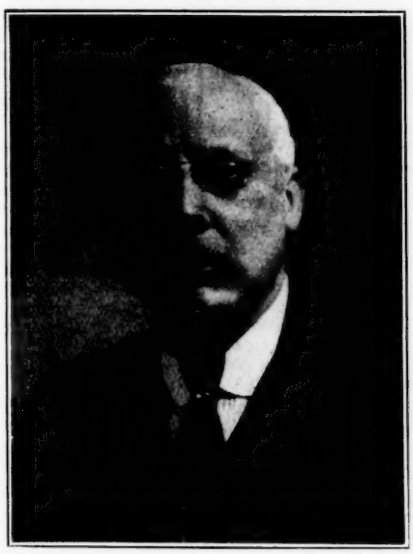
Obituary.

SAMUEL ARCHIBALD VASEY, F.I.C., F.C.S.,

DIRECTOR OF "THE LANCET" LABORATORY.

THE death of Mr. S. A. Vasey on Jan. 7th, after a brief illness, came as a great shock to his friends.

Born in London on March 9th, 1866, the son of Samuel and Alice Marwood Vasey, he was educated at the Leyton and the City of London Schools, going on then to Charing Cross Hospital Medical School, as it was at that time his intention to become qualified as a practitioner of medicine. Always keenly interested in chemistry and its application to hygiene and industrial research, he took his Fellowship of the Chemical Society in 1883, and almost at once became assistant to Professor C. W. Heaton, who had made a name at Epsom College, and later as lecturer on chemistry at Charing Cross Hospital, by arousing a living interest for the principles of chemistry among his pupils. Professor Heaton, who was public analyst to the parish of St. Martin-in-the-Fields, was at that time supervising the conduct of THE LANCET Laboratory. Vasey became his assistant also in that work, and on his death in 1893 took over the whole responsibility at the early age of 27 years.



S. A. VASEY.

For 28 years Vasey continued to direct the inquiries of all sorts conducted at THE LANCET, and it may well be doubted whether in this time any important work in chemistry or physics, and having a bearing upon the health and happiness of humanity, escaped his notice. Already in his first year of office we find him reporting on an Inquiry into the Character and Quality of the Ice-supply of London, on the Metallic Contamination in the Manufacture of Mineral Water, on a Special Analytical Sanitary Commission on Gaseous Fuel, and on another Commission on Tannin and Theine in China and Indian Teas. This work was a continuation of a scheme laid down by the founder of THE LANCET and carried on with energy by him and by his son, Dr. James Wakley, who succeeded him as Editor. The scheme was to institute inquiries by the paper, to which the title "Lancet Commissions" was given, under which persons with particular knowledge and authority should institute close inquiries into the circumstances where the public health was indifferently safeguarded, and should publish their results, THE LANCET taking the consequences. At the time when the scheme took shape the public was without the numerous forms of protection which have since been furnished by various Acts of Parliament. To assist in the actual inquiries and to conduct any physical and chemical investigations necessitated, a laboratory was founded and a director appointed, whose first inquiry, which was published in January, 1851, proved that most of the coffee on the market, sold under various alluring titles, was grossly adulterated. The excitement was created which Wakley expected, and the method employed in dealing with the analysis of coffee was followed in the analyses of other food and medicinal substances during the next ten years, when the scope of the investigations assumed a different character and while all sorts of foodstuffs came under investigation, such great subjects as the conditions of out-door poor relief, the water-supply of London, and the baking trade were dealt with. In connexion with the last inquiry Mr. Adolphe Smith, later to be associated with Vasey in so much public work, made his first report to THE LANCET.

Thus, when Vasey came to the laboratory the terms of reference were of the widest, and during his tenure investigations have been undertaken of so heterogeneous a character that we can only single out for notice a few of them; and concerning these we may say that, while the wide range proves Vasey's catholic equipment, we are not compelled to praise our friend or the nature of his work, for in scores of text-books his findings have been recorded with approval, and into more than one Act of Parliament his recommendations have found their way practically unchanged. Vasey was the author of a shrewd series of articles on the nature of quack abortifacients and the part author of a useful report upon the standardisation of disinfectants. These things are mentioned to show his skill at the bench. He made a thorough investigation into the physics of gas lighting and into the whole subject of heating by means of gas, and in the course of the latter work he supplied manufacturers of gas stoves with much information which they required for regulating the mechanism, and for obtaining economical results. Later, Vasey brought his intimate knowledge of air impurity to bear upon the whole subject of coal-smoke abatement. He was a strong supporter of the Coal-Smoke Abatement Society, and one of the first stations fitted up by the Meteorological Office, when the subject was put on a sound scientific basis, was in THE LANCET laboratory. He was also the author of three exhaustive inquiries into the two forms of alcohol sanctioned by the British Pharmacopœia—brandy and sherry—and into claret, the most frequent wine of ordinary drinking. His chemical résumés of these subjects constituted only a part of the interest of the articles. He took full opportunity during his investigations at the vineyards, to acquire information about soil, weather, and traditional routine, giving a broad character to the history of the three fluids. Others of his inquiries conducted far afield were those into the chemistry and natural history of continental waters such as Apollinaris and Hunyadi Janos and to the stock-breeding areas belonging to the Liebig Company. The medical profession were wisely informed by him, also, on such various topics of public interest as the nicotine contents of tobacco, with reference to pipe-, cigar-, and cigarette-smoking; the food value of oysters and the risks in their breeding and supply; and the measure of danger incurred by using certain flannelettes. In stopping at this point in our enumeration we do so because it is not easy to select, for any reasonable summary, the particular inquiries which have been either the most useful publicly, or displayed his skill in the most marked manner. The results of 28 years of application, knowledge, and intuition are accessible in our files.

Vasey's application of science to the things of daily life was not conscious or intentional, it had become part of his mental make-up. This was notably the case in regard to food. A luncheon to him was not (say) sausage and potatoes, it was 1250 large calories with too low a protein factor and a probable deficiency in fat-soluble A. A walk along the Strand or a fog-delayed journey from Cannon-street to Charing Cross afforded him material for interesting and informed comment. His mind was arranged on the pattern of a Royal Institution Christmas lecture, to be addressed to grown-ups instead of to

children. Atoms and ions and sols became simple when he wrote about them because they were not in a separate compartment of his thoughts labelled "science," but were jostling in familiar company with food and drink and clothes and the raw materials of industry. Doubtless the fact that he was largely self-taught, and had taken little pains to spread out his mental equipment before the cold eye of the examiner had much to do with this freshness and originality.

Vasey was a man of many accomplishments and interests outside his purely professional work, and the first of these was music, which was a never-ending source of pleasure to him. He had that gift which but few possess in like measure, a talent for improvisation: this showed itself, not as an aimless wandering from chord to chord, but as a well-ordered and formal treatment of a theme. His knowledge of harmony seemed intuitive, although modernists would have thought it dull. His favourite composer was Handel, and after him Bach and the dignified and restrained followers of the Church school of Palestrina, Gibbons, and the Elizabethan madrigalists. He took delight in plain-song, and his taste in hymn tunes would have satisfied Sir Hugh Allen, for he could not stand the washy part-song brand of tune. He could talk well and learnedly without being arid on the by-ways of chemistry and physics, and was a charming and sympathetic host. Until a form of writer's cramp spoilt his grip he was a keen golfer, and he was for five or six consecutive years captain of the Sundridge Park Golf Club, to the great and publicly expressed appreciation of the members.

Our readers will sympathise with us in the loss which we have sustained by this untimely death. We have endeavoured to show the wide range of his equipment and the practical nature of his services to the public for a long and uninterrupted period. He died in harness. Those who are responsible for the conduct of this journal will have an abiding recollection of many years of intimate association. We drew on his knowledge unceasingly, and from his fertile imagination and shrewd judgment we received many suggestions, valuable to ourselves, and having no close relation to his immediate sphere of activity. He has left in his laboratory an orderly collection of his voluminous contributions to our columns. This is particularly fortunate because Vasey was a living dictionary of public health, where public health was in contact with his work, and for many years his voice will be with us full of wise counsel.

He married in 1900 Gertrude, youngest daughter of John James Griffiths, J.P., of Highbury, and to his wife, who survives him, deep sympathy will go out.

The calamity was unexpected, though the end cannot be termed sudden. On Dec. 2nd, after a long day at his work, he was taken ill with acute bronchitis, which became broncho-pneumonia. There were periods of improvement, but signs of cerebral and meningeal involvement developed towards the end—and he died on Friday, Jan. 7th, at his house, "Beechcroft," Bromley, Kent, in the fifty-fifth year of his age. The funeral took place on Tuesday last at Plaistow Cemetery in the presence of a large attendance.

ROBERT JARED BLISS HOWARD, M.D., C.M. McGILL, F.R.C.S. ENG., L.R.C.P. LOND.

Dr. Robert Jared Bliss Howard, who died on Jan. 9th, was the only son of the late Dr. Robert Palmer Howard, dean of the Faculty of Medicine and professor of medicine in the University of McGill. Born in 1859, he was educated at the High School, Montreal, and afterwards at the University of McGill, where he graduated B.A. with first-class honours in Natural Science in 1879, proceeding to the M.D., C.M. degrees in 1882, again with honours, and taking the gold medal. In the same year he obtained the M.R.C.S. Eng. and the L.R.C.P. Lond., and went with the late Sir William Osler, who had been a student under his father, to Berlin, and afterwards visited clinics at Vienna and Leipzig. Later he assisted his father in practice at Montreal, and became demonstrator of anatomy and surgery at McGill University, pathologist and assistant surgeon to the Montreal General Hospital, and surgeon to the Montreal Dispensary. He became a Fellow of the Royal College of Surgeons of England in 1884, being one of the first graduates of a colonial university to take this diploma. During the South African War he worked at the Guards' Hospital, Rochester-row, and during the recent war he organised and supervised the Mount Royal Home for Officers at Bath, and also worked at the 3rd London General Hospital at Wandsworth. For his services he received special mention and was awarded the O.B.E.

Dr. Howard married in February, 1888, Margaret Charlotte, daughter of Donald Alexander Smith, afterwards first Baron Strathcona and Mount Royal, by whom he had three sons and two daughters. His second son was killed in action in May, 1915. The elder will succeed to his mother's barony.

EDWARD COLLINS BOUSFIELD, M.R.C.S. ENG., L.R.C.P. LOND., D.P.H.

Mr. Edward Collins Bousfield died at his residence, De Crespigny-park, London, S.E., on Jan. 7th, aged 65. He received his medical education at St. Bartholomew's Hospital, where he was physiological prosector from 1876 to 1878, in which latter year he qualified with the Membership of the Royal College of Surgeons of England. The following year he obtained the Licentiateship of the Royal College of Physicians of London, and devoted himself almost exclusively to the work of bacteriological research. The experience which he gained as pathologist to the Wellcome Physiological Research Laboratories and at the Medical Graduates' College and Polyclinic led to his later appointments as bacteriologist to the metropolitan boroughs of Camberwell and Hackney and as the director of the Camberwell Research Laboratories. He was also deputy medical officer of health for Camberwell and Metropolitan Asylums Board Ministry of Health representative.

As a microscopist he contributed several useful papers on various subjects to scientific societies, was the author of a work on microphotography, and edited the late Rev. J. G. Woods's "Common Objects of the Microscope." To our own columns he contributed an interesting article on "An Attempt to Rehabilitate the Permanganates" (vide THE LANCET, Oct. 10th, 1908, p. 1078), and as recently as August, 1919, he described as a unique disease a condition to which he gave the name of cryptopodia.

MANCHESTER RADIUM INSTITUTE.—Sir William Milligan, honorary secretary and treasurer of the Institute, has announced that out of £30,000 asked for barely £9000 have been subscribed by the public. Owing to the Institute's lack of radium it is impossible to give the necessary treatment with full dosage to the ever-increasing number of patients applying for relief. The new hospital, with its in- and out-patient departments—the first fully equipped radium hospital in the United Kingdom—will afford opportunities for much valuable work being done, not only from the therapeutic but also from the research point of view.

TURNER MEMORIAL HOSPITAL, KEITH: DISPOSAL OF A TRUST FUND.—The Second Division of the Court of Session have granted the petition of the trustees of the late William Gordon, who died in 1906. In 1905 by a codicil of his will he provided that the farm and lands of Rosehall should be held by his trustees as a permanent and inalienable endowment to the Turner Memorial Hospital, Keith. By a later codicil he gave a sum of £1000 as a further endowment to the hospital. From July, 1906, to December, 1918, the average surplus revenue paid in respect of the Rosehall subjects to the directors of the hospital was £28 4*s.* per annum. For the year 1919 there was a debit balance of £5 14*s.* due to the cost of repairs and increased rates. The trustees came to the conclusion that it would be of advantage if Rosehall could be sold and the proceeds invested in trust securities, in view of prospective heavy expenditure on the property and increased rates. The petitioners accordingly advertised Rosehall for sale, and got an offer of £1350. The present tenant offered £1450, which the petitioners now asked the Court to authorise them to accept. They submitted that this sum invested in Government funds would produce a net revenue for the hospital of £70.

Correspondence.

"Audi alteram partem."

OSTEITIS DEFORMANS?

To the Editor of THE LANCET.

SIR,—I read with great interest the note on osteitis deformans, contributed by my friends Mr. Frank Romer and Sir W. Arbuthnot Lane. Whether the cases described are identical with those originally observed by Sir James Paget it is not easy to decide. I have seen a number of cases where for years the affection has been localised to one or both tibiæ, but I have also seen a case where the disease became distributed after having been confined to one tibia for over ten years. In this case the second tibia, the clavicle, and the skull were ultimately attacked. I have operated on many cases generally with marked relief; on some I have had to operate a second time. Usually a linear incision along the length of the thickened bone right into the medulla suffices. In cases of marked bowing accompanied by pain both in the bone and knee-joint I have removed a wedge from the tibia and straightened the limb. The fracture heals readily. About 15 years ago I removed a wedge from a very crooked and painful tibia which presented symptoms very similar to those described by Mr. Romer's first patient. The microscopic appearances of the bone removed were described as those of chronic osteitis. I saw him five years later, and his leg had remained quite straight and his pain was trivial. Some of these localised cases give no history of accident.

I am, Sir, yours faithfully,

Liverpool, Jan. 8th. 1921. ROBERT JONES.

THE FUTURE OF THE POOR-LAW INFIRMARIES.

To the Editor of THE LANCET.

SIR,—I should regret if any observations of mine in opening the discussion at the Harveian Society on the future of the Poor-law infirmaries have brought annoyance to anyone professionally connected with these institutions. At St. Mary's we are not in the least likely to underrate the efficiency of the infirmary personnel. On the contrary, we are agreed that the successful development of the affiliation scheme between St. Mary's and Paddington Infirmary during the past year is due in great measure to the medical superintendent and his resident staff. In particular we have been impressed by the possibilities of such a post as medical superintendent of an infirmary, to which there is no exact analogy in a general hospital, when, as in the case in point, there is found a happy union of clinical acumen and administrative capacity.

Statements, when they are lifted not bodily but piece-meal from their context, can proverbially be made to mean anything. Those of which Dr. J. C. Muir complains in your issue of Jan. 1st were so qualified in the text that it was plain that they implied no personal reflections whatsoever. I had hoped that it was sufficiently clear in my paper that these shortcomings are, in my opinion, made inevitable "by the very nature of the limited personnel and the financial arrangements." The medical superintendent, with the help of two or three residents, and such assistance as may be forthcoming from weekly visits of one or two consultants, has to compete with a mass of clinical material which would elsewhere engage the whole energies of 12 to 20 residents, aided by clerks and dressers, and of a consultant staff 20 to 30 in number, to say nothing of registrars and accessory services. If they were archangels it could not be done. A few of the infirmaries, as we know, are exceptionally equipped, and the arrangements between St. Mary's and Paddington Infirmary are on more ambitious lines, but it was of the majority that I spoke. Of these I held, and still hold, that much remains to be done to convert them 'nto modern hospitals. The statements that I have made in support of that contention are, according to Dr. Muir, misstatements. We must leave it at that. It is of more moment that we are agreed as to the necessity for change.

When I was asked to open this discussion I ventured to suggest that a medical superintendent should be invited to take part in the debate, and that suggestion I repeated when the question of an adjournment came up. I think we can learn a great deal from criticism—from mutual criticism—if of a constructive nature, and I was under the impression that I had made it clear that many of us who are associated with the voluntary system are very conscious that it is far from perfect.

I write because I am in full accord with Dr. Muir that the spirit in which we approach the linking-up of voluntary hospitals and infirmaries is of the very first importance. Whether his letter or my paper more conduces to that end must be left to others.

I am, Sir, yours faithfully,

South Audley-street, W. Jan. 11th, 1921. C. M. WILSON.

OCCUPATIONAL HYGIENE AND THE SCHOOL MEDICAL SERVICE.

To the Editor of THE LANCET.

SIR,—I was very much interested in reading your leading article of Jan. 1st, which ably illustrates the highly unsatisfactory position and prospects of the junior whole-time school medical officer. Undoubtedly his lot is not a happy one, and certainly commands sympathetic consideration. The work is departmental, entirely executive, running in a monotonous groove, and the greater the number taking it up the less chance there is for the individual to get out of it. I agree that the situation is serious and should be ameliorated. At the same time I am somewhat surprised at the remedy suggested by the writer of the article, and equally so at his apparent faith in the infallibility of his cure. I am not unacquainted with factory medical work or public health administrative methods, and therefore do not hesitate to assure you that absorption of the certifying surgeon would simply mean a further increase of junior whole-time officers without any real bettering of unsatisfactory conditions. The only one to enjoy variety would be the administrative officer, as the executive work of factory medical service, at any rate in industrial areas, would certainly have to be undertaken by a separate department. Apart, however, from its doubtful efficacy, is it wise or proper to advocate the advancement of one section of the profession entirely at the expense of another section?

The attempt at justification has no stronger foundation than conjecture and the average certifying surgeon would probably find little difficulty in proving this (to his own satisfaction at least) to be as fallacious as the recommended cure. At any rate, the pushing of a theory of this kind means the promotion of a serious dispute within the profession. This would probably end unsatisfactorily for both parties, and would certainly give a good fillip to a third method of dealing with industrial medical problems which has already many supporters outside the profession. At a time when our medico-political leaders are advocating unity of the profession, and are impressing upon us the necessity of showing ourselves capable of working out our own future, is it not best to leave contentious matter of this nature severely alone? My own view is that it would be much more to the advantage of both these sections of the profession, as well as of the community at large, if they worked together to obtain a useful coördination of their separate functions and a general improvement of the disadvantageous conditions under which both are employed. To my mind the appointment of whole-time junior officers for executive work has been overdone, and I would venture the opinion that the only satisfactory way to get out of the blind alley is by a more general establishment of part-time service.

I am, Sir, yours faithfully,

W. F. DEARDEN,
Hon. Secretary, Association of Certifying Factory Surgeons.

168, Trafford-road, Manchester, Jan. 7th. 1921.

TABES:
ITS EARLY RECOGNITION AND TREATMENT.

To the Editor of THE LANCET.

SIR,—Dr. E. F. Buzzard, in a valuable article with this title, published in THE LANCET of Jan. 8th, states:—

"We are all asked 'How long must I go on with treatment before I am cured?' For many years my answer has invariably been, 'For the rest of your life.' I am never consulted about a primary chancre, but if I were my advice would be the same."

The statement is a pessimism not calculated to encourage prompt diagnosis and zealous early treatment, and should not pass unchallenged. On the contrary, I venture the dogmatic assertion that if a patient first comes under treatment while the blood is still negative (it is here the Wassermann test is of prime value) and receives the usual course of 2·6 g. of "606" and 8 gr. of mercury, the disease will be "knocked out." I shall be contradicted, but if I am not telling the whole truth, it is near enough for propaganda purposes. Personally I know of no exception and in the army I discharged such cases with much assurance. Unfortunately all trace of these men is lost, but surely by now there is sufficient material available to settle this important point and to define the rare exceptions which others may have to relate, where a full course has been given early and yet failed to eradicate the disease. The pathology of both gonorrhœa and syphilis teaches us that nothing can or ever will compensate for damning delay in diagnosis, but with early diagnosis one may be altogether optimistic concerning the ultimate result.

I am, Sir, yours faithfully,

Leicester, Jan. 9th, 1921. JOHN DONALD.

ORAL SEPSIS,
WITH SPECIAL REFERENCE TO CHRONIC DENTAL APICAL INFECTION.

To the Editor of THE LANCET.

SIR,—I find myself in agreement with much that Dr. Stanley Colyer says in his letter in your issue of Jan. 8th. It was not my object, however, to give an account of the history or literature dealing with oral sepsis or dental radiography. Had this been so I should have quoted the words of Rush, an American doctor, who, in 1801, only a quarter of a century after the Declaration of Independence, wrote: "I have been made happy by discovering that I have only added to the observations of other physicians in pointing out a connection between the extraction of decayed and diseased teeth and the cure of general diseases." Dr. Colyer will have noted that in my paper I referred to Dr. William Hunter as the pioneer in this field of research in England. Dr. Colyer appears to miss the purpose for which the paper was written, which was, as I stated, "to draw particular attention to one special part of the problem, that of chronic focal apical infection." For many years most of us have been preaching "the gospel of the clean mouth," but what I wished to emphasise was that the diagnosis of a clean mouth is impossible either by the doctor or the dentist without the aid of the radiographer. I submit that this fact is only beginning to be generally recognised in this country, and that a dental radiographic investigation does not form a part of the routine examination of the patient here as it does now in America. Further, the utilisation of radiography by the dentist for the many purposes for which it is helpful is in England the exception, in America the rule.

My experience is "small"—not with reference to oral sepsis in general, but merely in those cases with apparently clean and healthy mouths, revealing after radiographic and bacteriological investigation active foci of infection in the alveolus. Both doctors and dentists have been slow in grasping the importance of chronic dental apical infection and have not availed themselves of this method of diagnosis to the extent that they should. In my paper I asked the question, "Is simple extraction adequate?" I am sure your readers, like myself, would welcome Dr. Colyer's opinion on this point.—I am, Sir, yours faithfully,

Harrogate, Jan. 8th, 1921. W. BERTRAM WATSON.

DILUTE SULPHURIC ACID IN FURUNCULOSIS.

To the Editor of THE LANCET.

SIR,—I have read with much interest the "Dissertation upon Carbuncles" by Dr. Sidney Phillips in your issue of Jan. 8th, and agree with much that is contained therein; but when I read that among other internal remedies for this complaint he has found "dilute sulphuric acid" of *no good to him* I can only suppose that either he has not given it a sufficient trial, or that he has not used *dilute sulphuric acid* of the right strength. The proper strength is 10 per cent. of the strong acid, and the dose is 25 to 30 minims of this mixed with 2 ounces of water every four hours. I have now been in practice over 50 years, and have used this remedy with 100 per cent. successes for the last 40 years. If Dr. Phillips cares to know what this remedy can do I would refer him to a communication to THE LANCET of March 15th, 1913, also to the *British Medical Journal* of August 15th, 1908. Letters received from all parts of this country, and also reports from India, confirm my statements regarding this treatment. Lastly, the ordinary B.P. acid sulph. dil. is too weak to be of any use, unless given in *40 minim* doses.

I am, Sir, yours faithfully,

J. REYNOLDS, M.D. Brux., &c.

Brixton, S.W., Jan. 10th, 1921.

THE CULTURAL DIAGNOSIS OF ENTERIC IN INOCULATED INDIVIDUALS.

To the Editor of THE LANCET.

SIR,—Several recent numbers of THE LANCET have contained references to my article of Oct. 30th, 1920, on the Myth of "Atypical" Enteric Fever. It would be impossible to deal adequately with all of these in the form of a letter, and there is only one to which I wish to reply now. Dr. J. C. G. Ledingham, in THE LANCET of Jan. 8th, very justly questions my statement that "the difficulty of recovering enteric bacilli from the blood of inoculated soldiers is well known, even in the early stages of illnesses which clinically resemble enteric." This statement (especially having regard to the context) conveys the impression that I believe that in inoculated subjects enteric fever may exist without bacillæmia, or with a bacillæmia reduced in degree or duration or both, and Dr. Ledingham says that he is not aware of any published data in support of this view. Neither am I, and I thank Dr. Ledingham for drawing attention to the point. It is another of the myths arising out of a desire of some individuals to prove that agglutination provides the most reliable means of diagnosing enteric amongst inoculated soldiers. Dr. Ledingham's figures go far to dispel it.

It is a matter of great satisfaction to me to find that so distinguished an authority should be in sympathy with the substance of my argument. The question is, as Dr. Ledingham remarks, of high theoretical and practical importance. If the myth of "atypical" enteric fever prevails anti-enteric inoculation is not an unmixed blessing. Only when the myth is finally exploded and the dust has blown away can we get a clear conception of what a wonderful scientific achievement was the protection of the British armies from enteric.

I am, Sir, yours faithfully,

Jan. 8th, 1921. R. P. GARROW.

RELIEF ON INCOME-TAX IN RESPECT OF SERVICE INCOMES.

To the Editor of THE LANCET.

SIR,—Towards the end of 1919 or early in 1920 the Board of Inland Revenue issued a Memorandum to the effect that civil practitioners doing work in military hospitals should be granted the same relief on their service incomes as army medical officers had received—this concession to be retrospective as far as the year 1916–17. To those whom it concerned this appeared to be a plain act of justice and it was welcomed accordingly. The question then arose, How would the

Memorandum be carried into effect? To many of us the answer seemed simple and to be the necessary consequence of the following considerations. The civil practitioner was to receive the same treatment as the army medical officer; the latter had already received a definite and easily calculated financial relief on his service income; this same relief, now to become available for the civil practitioner, was as readily calculable—then why not regard the problem as a case of excess payment of income-tax and refund the excess? The issue of the Memorandum, it must be urged, was tantamount to an admission that from the year 1916–17 the service income of the civil practitioner had been overtaxed.

On approaching the income-tax authorities on this subject we learned, to our surprise, that the matter could not be dealt with in this plain and direct manner, for the reason that, whereas the army medical officer was assessed year by year (at the special rates) on the actual amount of remuneration for the year of assessment, in the case of the civil practitioner who had included his Service income in the total income from all sources (as he was bound to do), the Service income had been subjected to the "three years' average method of calculation," and that this made all the difference. Following upon this pronouncement, and having submitted the figures for the Service incomes of the years in question, we next received a document which, as it stands, is literally a cloud of figures as appalling and confusing as a November fog. Speaking personally, I do not feel that I have the acumen, even if I had the patience and the necessary time, to subject these ranks of figures to a critical examination, and I think it likely that others will feel with me in this matter. What is to be done? For to accept results without being able to follow the steps of the argument commends itself as little, as to agree to the postponement of the full settlement of the claim for relief until the year 1922–23—i.e., seven years after the relief first came into operation; yet this is what is asked of us.

In these circumstances I propose that we examine, not the figures themselves, but the premisses on which they are based, for if it should appear that these premisses contain a fallacy the whole calculation will of necessity be fallacious. In like manner it is proposed to examine the results of the calculation, for if among these there should be found any one to which the reductio ad absurdum argument would be applicable, again the calculation would be invalidated. Now at the very outset the authorities contend that, as a result of the three years' average system of assessment, the amount received by the State in any given year (for income-tax purposes) is one-third of that year's income and no more, and that in consequence two more years must elapse, in order that this particular income may figure twice again in the averaging, before the State will have had the use of the whole sum. This contention is, in my opinion, a complete fallacy, for the three years' average pools the incomes of three whole years and three whole years divided by three yield one whole year's income, not one-third of a year's income. And even if we accept the ingenious way of putting it, adopted by the income-tax authorities—viz., that the figure obtained by the averaging consists of one-third of the given year and one-third each of the two preceding years (which is quite true)—we must point out that the year which *pays* for the sum of these three-thirds is the given year, and three-thirds make one whole. Therefore in any given year the State receives a whole year's income, averaged on three years. Indeed, if the year in question happens to be a lean one as compared with the two preceding years, then the taxpayer, so far from paying on one-third of his income, will pay on more than his whole year's income. The accompanying figures will show this: (1) £600, (2) £500, (3) £400 = £500 average for the three years—i.e., for year, No. 3, £100 in excess of the actual income. Of course, if the third year is a fat year the effect will be reversed. On reflection it must be apparent that the method of averaging does no more than distribute inequalities, an obvious convenience for Budget purposes. If the above reasoning be sound, the calculation is based upon a fallacy and its outcome must be fallacious, including the contention that the tax-payer must wait three years for the settlement of his claim.

Lastly, to examine one other of the actual results of the calculation. I find that for the year 1919–20 (in my own case) it is stated there is due to me in relief for the whole period since 1916–17—i.e., for four years—the sum of £20 18*s.* 6*d.*, but that, per contra, I am in debt to the Revenue to the extent of £89 8*s.* 5*d.*, leaving a balance against me of £68 9*s.* 11*d.* It is true that subsequent years are to make good and that by 1922–23 there is to be an effective ultimate relief of £97 2*s.* 1*d.*, though as far as I can gather it will not materialise in the form of a cheque; that, however, is not the point on which I would lay stress, but this—that in the year 1919–20, having paid in full all my income-tax demands, without any deduction whatsoever on account of my included Service incomes, this calculation finds me in debt to the Revenue to the amount of £68 9*s.* 11*d.*, and this is the result of the granting of a relief! Is not this a reductio ad absurdissimum?

The Trojans were bidden to fear the Greeks "et dona ferentes"; is this to become our attitude of mind towards the income-tax authorities?

I am, Sir, yours faithfully,

HARRINGTON SAINSBURY.

Wimpole-street, W., Jan. 10th, 1921.

SCALDED MILK.

To the Editor of THE LANCET.

SIR,—As there seems to be some confusion as to the wisdom of heating milk for infant feeding by boiling, pasteurising, so-called sterilising, or scalding, I venture to suggest, as the result of the following experiments, that scalding the milk is quite sufficient for all ordinary purposes. One of the principal objects in heating milk is the destruction of tubercle bacilli, and this is effectually accomplished in pasteurising, boiling, or "sterilising," but if the milk is allowed to remain at 100° C. for a considerable period, the activity of the antiscorbutic accessory factor is also all but destroyed. The question therefore to which an answer was required resolved itself into the following: "Is there a period in the heating of milk at which the destruction of tubercle bacilli is assured without serious interference with the activity of the antiscorbutic vitamine?"

To settle this question I was fortunate in seeing at the Lister Institute a monkey in an advanced stage of artificially induced scurvy. So bad was the animal that Miss Harriette Chick had decided to give it antiscorbutic treatment to save its life. She kindly agreed to try the effect of scalded milk. The method of scalding was as follows. The milk was warmed in the gas flame, without stirring, till it frothed up, when it was at once removed and allowed to cool. The milk took 5 minutes to heat and 20 to cool. It was at a temperature of 90° to 100° C. for about 1½ minutes. The monkey was allowed daily 200 c.cm. of this scalded milk and in a short time completely recovered.[1] Scalded milk did not, therefore, destroy the activity of the antiscorbutic vitamine.

The next point was to discover whether scalding was sufficient to destroy the tubercle bacilli. I therefore asked Dr. F. H. Teale's assistance, and he very kindly fell in with my wish. He inoculated milk with an active strain of tubercle bacillus, scalded it as above, and injected three guinea-pigs. In due time the animals were destroyed and were found to be quite free of infection of tubercle.

These simple experiments prove two points: (1) scalded milk retains at least a considerable portion of its vitamine activity; and (2) tubercle bacilli are destroyed by such scalding.

I am, Sir, yours faithfully,

E. A. BARTON,
Medical Officer to Infant Welfare Department,
Jan. 12th, 1921. University College Hospital.

[1] Biochemical Journal, vol. iii., p. 317.

Col. Sir W. R. Smith, V.D., T.D., and Dr. G. S. Brock, M.B.E., have received from the King of Italy the decoration of the Cross of Commander of the Order of the Crown of Italy.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At recent examinations the following candidates passed in the subjects indicated:—

Surgery.—S. Davies (Sects. I. and II.), Univ. Coll. Hosp.; R. F. Divecka (Sect. II.), London Hosp.; W. Kilroe (Sect. I.) and M. Melglave (Sects. I. and II.), King's Coll. Hosp.; and J. B. Williamson (Sect. II.), Cambridge and Middlesex Hosp.

Medicine.—S. Davies (Sects. I. and II.), Univ. Coll. Hosp.; L. Dinerstein (Sects. I. and II.), Manchester; C. T. Gasking (Sects. I. and II.), Liverpool and Sheffield; H. D. L. Jones (Sect. I.) and R. J. Little (Sects. I. and II.), St. Mary's Hosp.; E. R. D. Nagel (Sects. I. and II.), St. Thomas's Hosp.; W. R. Ranson (Sects. I. and II.), Middlesex Hosp.; and C. Verheyden (Sect. I.), Utrecht and Univ. Coll. Hosp.

Forensic Medicine.—S. Davies, Univ. Coll. Hosp.; R. J. Little, St. Mary's Hosp.; S. E. J. Miedema, Amsterdam; W. R. Ranson, Middlesex Hosp.; B. W. Roffey, St. Mary's Hosp.; C. Verheyden, Utrecht and Univ. Coll. Hosp.; and J. B. Williamson, Cambridge and Middlesex Hosp.

Midwifery.—J. H. Cooper, Glasgow; S. Davies, Univ. Coll. Hosp.; S. E. J. Miedema, Amsterdam; and M. Teherny, Zurich.

The Diploma of the Society was granted to the following candidates entitling them to practise medicine, surgery, and midwifery: S. Davies, R. F. Divecka, R. J. Little, E. R. D. Nagel, and W. R. Ranson.

LONDON SCHOOL OF TROPICAL MEDICINE.—The following candidates passed the examination held at the termination of the sixty-fourth session (October–December, 1920):—

*P. A. Buxton (Duncan medal), *H. B. Parker, *H. G. Wiltshire, *L. C. D. Hermitte, *W. B. Cullen, *C. Heppenstall, *R. H. Liscombe, *R. E. Flowerdew, S. C. Bose, E. R. Kellersberger, G. V. Allen, A. A. Denham, H. S. Haji, A. S. Paranjpe, A. Das Gupta, C. J. Caddick, Z. Khaled, P. T. Liang, A. H. Patel, W. R. Taylor, F. Maya Das, S. Somasundram, W. E. de Silva, F. V. Jacques, Miss E. B. Salter, A. M. Kirdany, A. W. Hocker, Miss E. Lombard, A. K. Moilliet, Miss M. Gore, A. R. Mehta, O. van Stenis, Miss A. Gore, J. M. McCleery, Miss D. G. D'Abreu, A. F. Abbassi, E. S. Palmer, K. Ponniah, R. Parmanand, A. S. Westmorland, E. T. Saravanamuttu.

* With distinction.

UNIVERSITY OF LONDON.—*University College:* Courses on the History of Science this term include an introductory course of lectures, continued from last term, on the General History and Development of Science, by Mr. A. Wolf, on Wednesdays at 3 P.M. A course of six lectures, continued from last term, on the History of the Biological and Medical Sciences from Early Times to the Eighteenth Century, by Dr. Charles Singer, on Tuesdays at 5.15 P.M., beginning Jan. 18th, and three lectures on the Development of Medicine in Modern Times, also by Dr. Singer, on Mondays at 5.15 P.M., beginning on March 7th. Fees, for one course, £1 11*s.* 6*d.*; for two courses, £2 2*s.*

King's College Psychological Department.—On Jan. 19th, at 5.30 P.M., Dr. William Brown will begin a course of weekly lectures and demonstrations, extending over two terms, on Experimental Psychology, for medical men preparing for the Diploma in Psychological Medicine. The class will be limited to 10 members, and intending applicants should write to the Secretary, King's College, Strand, W.C. 2, for particulars.

LONDON DERMATOLOGICAL SOCIETY.—A meeting will be held at 4.30 P.M. on Tuesday, Jan. 18th, at St. John's Hospital, 49, Leicester-square, W.C. Clinical cases will be shown by Drs. J. L. Bunch, W. K. Sibley, D. Vinrace, W. Griffith, S. R. Kapoor, E. J. D. Mitchell, Eva White, and J. Forbes.

ROYAL CHEST HOSPITAL: PROPOSED AMALGAMATION.—A special meeting of the governors of this hospital will be held at the Mansion House on Jan. 17th, at 3 P.M., to consider and, if thought fit, to pass the following resolution:—

That this meeting of the governors of the Royal Chest Hospital, having considered the guiding features of the scheme laid before them for the amalgamation of the Royal Chest Hospital, City-road, with the Great Northern Central Hospital, and being of opinion that it carries out in effect the intentions of the subscribers and donors of this charity, so far as it is possible in a scheme of this nature, hereby approve the same, and sanction the carrying into effect of the details of the scheme as approved by the council of the Royal Chest Hospital.

Early in 1920 the council of the Royal Chest Hospital came to the conclusion that the financial position of the hospital was such that they could not continue to maintain the hospital for more than a short time, and the Great Northern Central Hospital authorities, having been approached by the council, submitted in March, 1920, a list of the conditions under which they would be ready to continue unimpaired the work of the Royal Chest Hospital. These conditions are now being recommended to the governors of the latter hospital for acceptance.

ROYAL INSTITUTION.—On Thursday, Jan. 20th, at 3 P.M., Dr. Arthur Harden will deliver the first of two lectures on Vitamines.

POST-GRADUATE COURSE ON INFANT AND CHILD WELFARE.—A course of 12 practical demonstrations on the Management and Feeding of Infants and Young Children will be given by Dr. Eric Pritchard to qualified practitioners, commencing on Jan. 18th. The demonstrations will be given on Tuesdays and Thursdays at St. Marylebone General Dispensary, 77, Welbeck-street, Cavendish-square, London, W., from whose secretary further information and tickets for the course, £2 2*s.*, can be obtained.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART: POST-GRADUATE COURSE, 1921.—A special course of ten lectures, to be held on Mondays at 5.30 P.M., will begin on Jan. 17th, when Dr. B. T. Parsons-Smith will lecture on Mitral Stenosis. The clinical practice of the hospital, both in the out-patient department and in the wards, is open to members of the post-graduate course, for which a fee of £2 2*s.* per month, or £5 5*s.* for three months, is charged. Subsequent lectures will be announced in the medical diary of THE LANCET. All inquiries should be addressed to the Dean, Dr. P. Hamill.

KING EDWARD'S HOSPITAL FUND FOR LONDON.—A meeting of the General Council of King Edward's Hospital Fund for London was held on Jan. 10th, at the offices of the Fund, 7, Walbrook, London, E.C., with Lord Stuart of Wortley in the chair. The order, signed by His Royal Highness the Prince of Wales, president of the Fund, appointing members of the General Council, members of committees, and officers, for the year 1921, was read. Resolutions providing for the work of the Fund for 1921, which were approved at the meeting or the President and General Council held at St. James's Palace on Dec. 4th, 1920, were formally adopted.

HONOUR TO A MEDICAL MAN.—Mr. D. M. Greig, who has been appointed curator of the Museum of the Royal College of Surgeons in Edinburgh, was on Dec. 31st, 1920, presented with the freedom of the city of Dundee. Mr. Greig, one of the best-known surgeons in Scotland, has been in practice in Dundee for 30 years, and was senior surgeon to the Royal Infirmary there.

AT the "Aal' 'Eel" gathering of members of the Aberdeen Buchan Association a collection was taken on behalf of Sir James Taggart's building fund for the Sick Children's Hospital, and amounted to £12 2*s.* 9*d.* As the result of a concert in aid of the funds for the same scheme a sum of £63 has been handed to Sir James Taggart.

OLDMILL HOSPITAL AS A CURATIVE CENTRE.—At a meeting of the Aberdeen Parish Council held on Jan. 6th a letter was read from the Works Department of the Ministry of Pensions confirming the proposed agreement for the Ministry to take over a part of Oldmill Hospital (late 1st Scottish General Territorial Hospital) as a curative centre for disabled ex-Service men.

MANCHESTER CORONER'S REPORT.—The Manchester coroner in his annual report comments on the increasing number of street accidents, and states that during the year 689 inquests were held—slightly in excess of the number in 1919, but 353 fewer than in 1914. 111 inquiries were held last year into the deaths of children under the age of 12 months; of these, 30 were suffocated while in bed with the parents. Of the total inquests held, a third were on children under 16 years of age.

MANCHESTER ROYAL INFIRMARY.—The post-graduate lectures and demonstrations on medical, surgical, and special subjects, given by the honorary staff, have been resumed and will be held each week on Tuesdays, at 4.30 P.M. throughout the session. The lectures are free, and a notice of each lecture will be inserted in our diary of the preceding week. The next one will be held on Jan. 18th, by Dr. E. S. Reynolds, on Aphasia.

MANCHESTER HOSPITALS.—The Manchester Children's Hospital has received from the National Relief Fund a gift of £20,000, a sum which will enable the hospital to pay off an accumulated debt to the bank, but leaves it burdened with making good the annual deficiency on income of many thousand pounds—during the year 1919 the deficit on income and expenditure account was £11,993. During the year 2227 patients were treated at the hospital, 20,000 at the out-patient department, and 317 sent to the convalescent home at St. Anne's. The annual return of patients admitted to the Royal Infirmary during last year shows 10,997 new in-patients, 21,014 new out-patients, 18,305 new out-patients at the infirmary and central branch, and 1482 new patients at the convalescent hospital.

THE Liverpool and District Overseas Medical Officers are holding their third annual dinner at the Midland Adelphi Hotel, Liverpool, on Friday, Feb. 11th, when Sir John Goodwin, Director-General, A.M.S., hopes to be present. Tickets may be obtained from the honorary secretary, Captain G. F. R. Smith, 19, Queen's-drive, Mossley Hill, Liverpool.

DONATIONS AND BEQUESTS.—Under the will of the late Mr. D. M. Currie the following bequests, among others, are made: £20,000 each to Greenock Infirmary, Poplar, St. Thomas's, St. George's, St. Bartholomew's, Westminster, London, Middlesex, and Guy's Hospitals; £10,000 each to the Royal Scottish Corporation, Liverpool Infirmary, and Sir Gabriel Wood's Mariners' Asylum; £5000 each to the Liverpool Southern Hospital, Liverpool Caledonian Association, Belfast Infirmary, King's College Hospital, St. Mary's Hospital, and King Edward's Hospital Fund.—The Chelsea Hospital for Women has received from the Grocers' Company £50 towards building its nurses' home, and £12 18*s.* 9*d.*, proceeds of an offertory from Chelsea Old Church.—Under the will of Dr. Willoughby Furner, of Hove, who died in October last, £2,000 were bequeathed to the Royal Sussex County Hospital, Brighton, for the endowment of a bed in his name.—By the will of the late Mr. George Tangye, of Handsworth, Birmingham, £1,000 have been bequeathed to the Children's Hospital, Birmingham; £1,000 to the Central Hospital, Birmingham: £1,000 to the Queen's Hospital, Birmingham; and £1,000 to the Women's Hospital, Birmingham.—The late Mrs. Louisa Maria Borradaile, of St. Hilary, Lincoln, has left by will £500 to the Lincoln County Hospital.—Colonel Hendley Paul Kirkwood, late R.E., of Bath, among other bequests, has left by will £500 to the Royal United Hospitals, Bath.

WEST SUSSEX CORONERS' ALLOWANCES AND SALARIES.—The West Sussex County Council on Dec. 31st, 1920, passed resolutions revising the salaries and allowances of the coroners for the Horsham and Chichester districts. For the Horsham district coroner special allowances of £104 per annum were granted, and for the Chichester district coroner the sum of £25, the latter district not entailing such a large amount of railway travelling as the former. The salary of the Chichester district coroner was increased from £101 to £125.

SUSSEX PROVIDENT SCHEME.—The following scheme is set out by Dr. Gordon Dill, senior physician to the Royal Sussex County Hospital. Residents in Sussex, who pay the annual subscription—£1 per annum for a single member, £1 10*s.* for a married couple without children or a widow or widower with one child, and £2 for married people with children—will obtain a number of valuable benefits at present out of their reach. The scheme does not aim at providing ordinary medical attendance or at giving benefits supplied by the State or local authorities, but the medical attendants of members will be able to arrange for private consultations at the following hospitals: Royal Sussex County Hospital, Royal Alexandra Hospital for Sick Children, Brighton and Hove Hospital for Women (for Obstetrics and Gynæcology), Brighton and Hove Provident Dental Hospital (for Dental Surgery), Brighton, Hove, and Preston Dispensary, Sussex Eye Hospital (for Ophthalmic Cases), Sussex Throat and Ear Hospital (for Diseases of the Throat, Nose, and Ear), Lady Chichester Hospital (for borderland Mental Cases), and New Sussex Hospital for Women and Children. Any treatment found to be necessary as the result of this consultation will be given at the hospital, while patients confined to bed will be visited by consultants at their homes. At the Dental Hospital members will receive ordinary dental treatment, and dentures will be supplied at hospital rates. All the resources of the Stephen Ralli Memorial Laboratory at the Royal Sussex County Hospital will be available, including bacteriological and pathological investigations, vaccines, and X ray examinations and treatment; also massage and electrical treatment. All who are insured under the National Health Insurance Acts will come within the scope of the scheme, and for others a maximum income limit of £260 for single members, £400 for married people without children, or a widow or widower with one child, and £500 for a family are suggested. All subscriptions received during the year will be divided among the coöperating bodies in proportions which have been already agreed upon for the first year; but this arrangement—as also the rates of subscription except in case of original members—will be subject to revision in the light of the year's experience. The first 10,000 members will receive an "original member's" card, and their subscription will not be raised while they continue to be members. The scheme is already at work and members have been elected to it. Forms of application for membership may be obtained at 4, St. George's-place, Brighton.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

Tuesday, Jan. 18th.

GENERAL MEETING OF FELLOWS: at 5 P.M.
Ballot for Election to the Fellowship. (Names already circulated.)

MEETINGS OF SECTIONS.

Tuesday, Jan. 18th.

SECTION OF THERAPEUTICS AND PHARMACOLOGY: at 4.30 P.M.
LABORATORY MEETING at the National Institute for Medical Research, Hampstead, by the invitation of Dr. H. H. Dale (two minutes' walk from Hampstead Tube Station).
Presidential Address:
Dr. H. H. Dale: Recent Tendencies in Chemo-therapy.
Paper:
Dr. J. H. Burn: A Comparison of Digitalis Tinctures by Different Physiological Methods.
Demonstrations.

SECTION OF PATHOLOGY: at 8.30 P.M.
Communications:
Sir George Lenthal Cheatle: Carcinoma of the Breast.
Dr. J. A. Murray: Multiple Nodular Hypertrophy and Early Carcinoma in the Mouse Mamma.
Mr. A. H. Drew: Amitosis and Mitosis in *in vitro* Cultures of Normal Tissues and of Tumours of the Mouse.

Wednesday, Jan. 19th.

SECTION OF HISTORY OF MEDICINE: at 5 P.M.
Papers:
Dr. O. C. Gruner: The De Viribus of Avicenna; the Key to the Interpretation of the Arabian Theory of Medicine.
Dr. W. J. Turrell: The Electrotherapists of the Eighteenth Century. John Wesley, Paul Marat, and James Graham.

Thursday, Jan. 20th.

SECTION OF DERMATOLOGY: at 5 P.M. (Cases at 4.30 P.M.)
Case:
Dr. H. W. Barber: Severe Case of Tertiary Syphilis.
Other cases will be shown.

Friday, Jan. 21st.

SECTION OF OTOLOGY; at 5 P.M. (Cases at 4.45 P.M.)
Paper:
Mr. T. Ritchie Rodger: Cavernous Sinus Thrombosis—Notes of Four Cases.
Cases will be shown by—
Mr. Colledge, Mr. Jefferson Faulder, Mr. A. J. Hutchison, Mr. Harold Kisch, and Mr. Mollison.

SECTION OF ELECTRO-THERAPEUTICS: at 8.30 P.M.
Paper:
Dr. W. J. Turrell: The Therapeutic Activity of the Galvanic Current. To be followed by a discussion.

MEDICO-LEGAL SOCIETY, 11, Chandos-street, Cavendish-square, W.
TUESDAY, Jan. 18th.—8.30 P.M., Paper:—Dr. H. G. Sutherland Medical Evidence in the Staunton Murder Trial.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.
MONDAY, Jan. 17th, WEDNESDAY, AND FRIDAY.—5 P.M., Hunterian Lectures:—Prof. A. Keith: The Principles of Human Craniology (illustrated by specimens and preparations). (Lectures I., II., and III.)

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.
MONDAY, Jan. 17th.—12.15 P.M., Dr. Burnford: Pathological Demonstration. 2 P.M., Dr. G. Stewart: Medical Out-patients. Mr. D. Armour: Operations. 5 P.M., Lecture:—Dr. A. Saunders: The Digestive Disturbances of Infants and Children.
TUESDAY.—10 A.M., Mr. Steadman: Dental Department. Dr. McDougal: Electrical Department. 2 P.M., Dr. Pernet: Skin Department. 5 P.M., Lecture:—Dr. Burnford: Physiology of the Digestive Tract.
WEDNESDAY.—11 A.M., Mr. MacDonald: Demonstration of Cystoscopy. 2 P.M., Mr. Gibb: Eye Department. Dr. Morton: X Ray Department. 5 P.M., Lecture II.:—Dr. Simson: Obstetric Emergencies.
THURSDAY.—2 P.M., Mr. B. Harman: Eye Department. Mr. Baldwin: Orthopædic Department. 2.30 P.M., Dr. A. Saunders: Demonstration of Cases (Medical Wards). 5 P.M., Lecture-Demonstration: Prof. H. Littlejohn: The Medico-legal Post-mortem Examination of a Newly-born Infant (open to all medical practitioners).
FRIDAY.—9.30 A.M., Dr. G. Stewart: Neurological Demonstration. 2 P.M., Mr. Banks Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Mr. Addison: Visit to Surgical Wards. 5 P.M., Lecture II.:—Mr. Baldwin: Appendicitis.
SATURDAY.—10 A.M., Dr. A. Saunders: Medical Diseases of Children. 12 noon, Mr. Sinclair: Surgical Diseases of the Abdomen. 2 P.M., Dr. Owen: Medical Out-patients.
Daily:—10 A.M. Ward Visits. 2 P.M., In-patient, Out-patient Clinics and Operations.

MIDDLESEX HOSPITAL MEDICAL SCHOOL.
THURSDAY, Jan. 20th.—3 P.M., Address:—Sir James Kingston Fowler: The Colonial Medical Service.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street, W.
MONDAY, Jan. 17th.—5.30 P.M., Post-Graduate Lecture:—Dr. B. T. Parsons-Smith: Mitral Stenosis.

ST. MARYLEBONE GENERAL DISPENSARY, 77, Welbeck-street, Cavendish-square, W.
Post-Graduate Course on Infant and Child Welfare.
TUESDAY, Jan. 18th.—10.30 A.M., Dr. E. Pritchard: Practical Demonstrations on the Management and Feeding of Infants and Young Children—Demonstration I., Causes of Infant Mortality.
THURSDAY.—3 P.M., Demonstration II., How to Establish an Infant Welfare Centre and Conduct an Infant Consultation.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.
THURSDAY, Jan. 20th.—3 P.M., Lecture:—Dr. A. Harden: Biochemistry.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.
TUESDAY, Jan. 18th.—4.30 P.M., Lecture:—Dr. E. S. Reynolds: Aphasia.

SALFORD ROYAL HOSPITAL AND ANCOATS HOSPITAL POST-GRADUATE DEMONSTRATIONS, at the two Hospitals alternately.
THURSDAY, Jan. 20th.—4.30 P.M., Dr. Langley: The Diagnosis of Diseases of the Liver. (At Salford Royal Hospital.)

ST. MARY'S HOSPITALS, MANCHESTER, POST-GRADUATE LECTURE, at Whitworth-street West Branch.
FRIDAY, Jan. 21st.—4.30 P.M., Dr. Lapage: Vomiting in New-born and Young Infants.

Appointments.

KENDREW, A. J., M.B., B.S. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Acts for Barnstaple.
Hampstead General and North-West London Hospital: HUDSON, P., M.B., B.S. Lond., House Physician; FULTON, R. H., M.B., Ch.B. New Zealand, House Surgeon; LAWRENCE, G. S., M.B., Ch.B. Aberd., Casualty Medical Officer; MILLER, W. A., M.B., Ch.M. Edin., Casualty Surgical Officer.
Women's Medical Service in India: LEACH, F., Medical Officer in Charge of Dufferin Hospital, Cawnpore; WATTS, A. M., Medical Officer in Charge, Dufferin Hospital, Lucknow; GHOSH, L. M., Medical Officer in Charge, Ishwair Memorial Hospital, Benares.

Vacancies.

For further information refer to the advertisement columns.

Altrincham General Hospital, Cheshire.—H.S. £175.
Bath, Royal United Hospital.—H.S. and H.P. £200 each.
Birmingham City Education Committee.—Asst. Sch. M.O. £500.
Blackburn and East Lancashire Royal Infirmary.—Second and Third H.S.'s. £250 each.
Board of Education.—M.O. £600.
Bradford City, Infants' Clinic and Hospital.—Female Asst. M.O. £450.
Bradford Municipal General Hospital, St. Luke's.—House Res. Asst. M.O. £350.
Bradford Royal Infirmary.—H.S. £200.
Canterbury, Kent and Canterbury Hospital.—Res. M.O. £175.
City of London Hospital for Diseases of the Chest, Victoria Park, E.—H.P. £100.
Colchester, Severalls Mental Hospital.—Asst. M.O. £510
Durban, Government Hospital.—Asst. M.O. £484.
East London Hospital for Children and Dispensary for Women, Shadwell, E.—Res. M.O. £200.
Eccles and Patricroft Hospital.—Res. H.S. £200.
Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—Female Dent. S. to In-patients. £10 10s.
Evelina Hospital for Children, Southwark, S.E.—Hon. P. to Out-patients.
Glamorgan County Council.—M.O. £700.
Great Northern Central Hospital, Holloway, N.—Cas. O. £200. H.S. £150. Anæsth. £10 10s.
Hampstead General and North-West London Hospital, Haverstock Hill, N.W.—Hon. Dent. S.
Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—Asst. Res. M.O. £150. Also H.P.'s.
Hospital for Sick Children, Great Ormond-street, W.C.—Ophth. S.
Hull Royal Infirmary.—Asst. H.S. £150.
India, Countess of Dufferin Fund.—Three Med. Women. Rs. 350 per mensem.
Kettering and District General Hospital.—Res. M.O. £300.
King's College Hospital, Denmark Hill, S.E.—Clin. Pathol. £400.
Kirkburton, Storthes Hall Asylum, near Huddersfield.—Asst. M.O. £400.
Leeds Public Dispensary.—Res. M.O. £200.
Lincoln County Hospital.—Jun. H.S. £150.
Liverpool, David Lewis Northern Hospital.—Hon. Asst. M.O. to X Ray Dept.
London County Mental Hospital Service.—Seventh Asst. M.O. £300. Also Clin. Assts. £200.
London Homœopathic Hospital, Great Ormond-street, Bloomsbury, W.C.—Asst. P.
Macclesfield, Cheshire County Asylum, Parkside.—Asst. M.O. £350.
Manchester, Ancoats Hospital.—H.S. £150.
Manchester, Barnes Convalescent Hospital, Cheadle.—Res. M.O. £300.
Manchester Royal Infirmary.—Accident Room H.S. £200.
Manchester, Victoria Memorial Jewish Hospital, Cheetham.—Res. M.O. £150.
Middlesex County Council.—Asst. M.O. £500.
Newark Hospital and Dispensary.—Res. H.S. £200.
Newcastle-upon-Tyne, Royal Victoria Infirmary.—Anæsth.
Nottingham General Hospital.—Res. Cas. O. £300. H.S. £200.
Oldham Royal Infirmary.—Third H.S. £200.
Plymouth, South Devon and East Cornwall Hospital.—H.P. £140. S.
Prescot Union.—Non-res. Asst. M.O. £450.
Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Asst. S. Also Ophth. S.
Queen Mary's Hospital for the East End, E.—Hon. Dental S.
Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—Cas. O. £150. Also Res. H.P. £125.
St. Mary's Hospital Medical School, Paddington, W.—Lecturer on Chemistry. £400.
St. Marylebone General Dispensary, 77, Welbeck-street, Cavendish-square, W.—Hon. P.
Salisbury General Infirmary.—Asst. H.S. £150.
Sheffield Royal Hospital.—Asst. Cas. O. £150.
Southend-on-Sea County Borough.—Asst. M.O. £500.
South London Hospital for Women, South Side, Clapham Common, S.W.—Female Asst. Path. £150. Anæsth. 10s. 6d. per attendance. Clin. Assts. H.P. and H.S. £100.
Stockport Infirmary.—Asst. H.S. £220.
Stoke-on-Trent and Stoke Rural Joint Hospital Board.—Res. M.O. £500.
Stoke-on-Trent, North Staffordshire Infirmary.—H.S. £200.
Stroud General Hospital.—H.S. £200.
Taunton and Somerset Hospital.—Res. Asst. H.S.
University of London.—External Examiners.
Victoria Hospital for Children, Tite-street, Chelsea, S.W.—H.P. and H.S. £100.
Wells Asylum, Somerset.—Asst. M.O. £300.
West London Hospital, Hammersmith-road, W.—P. Also Hon. Obstetric Registrar.
Westmorland Sanatorium and Home, Meathop, Grange-over-Sands.—Temp. Res. Asst. M.O. £7 7s. per week.
Willesden Hospital.—Additions to Hon. Med. Staff.

THE Home Secretary gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act, 1906, for the Sheriffdom of Stirling, Dumbarton, and Clackmannan. Applications for the post should be addressed to the Private Secretary, Scottish Office, and should reach him not later than Feb. 5th, 1921.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Arundel and at Long Buckby.

Births, Marriages, and Deaths.

BIRTHS.

MILLER.—On Jan. 8th, at 32, Abercorn-place, N.W.8, to Dorothy wife of Dr. Reginald Miller, F.R.C.P. (of 110, Harley-street, W.1) —a daughter.
MOTT.—On Jan. 9th, at Glenlyon, Parkstone, Dorset, the wife of R. Culver Mott, M.B., of a daughter.
PATEY.—On Jan 8th, at Dagenham House, Newton Abbot, the wife of Walter Patey, M.D., of a daughter.

MARRIAGES.

DANE—NEWMARCH.—On Jan. 7th, at Havant, Robert Dane, M.R.C.S., L.R.C.P., to Ethel Margaret, daughter of the late John Newmarch and the late Mrs. Newmarch, of Howden Lodge, Southsea.
PARSONS—DAWNAY.—On Jan. 3rd, 1921, at the Church of St. Mary-le-Park, Battersea, Christopher Thackray Parsons, O.B.E., M.D. Lond., to Annie Burgess, widow of Archibald Hugh Payan Dawnay, F.R.C.S.

DEATHS.

BOUSFIELD.—On Jan. 7th, at De Crespigny-park, Denmark Hill, S.E., Edward Collins Bousfield, L.R.C.P., M.R.C.S., D.P.H. (Camb. and Lond.), aged 65 years.
HIGGENS.—Suddenly, on Dec. 28th, 1920, Charles Higgens, Consulting Ophthalmic Surgeon, Guy's Hospital.
HOWARD.—On Jan. 9th, at Green-street, W., Robert Jared Bliss Howard, F.R.C.S.
KINCAID PITCAIRN.—On Jan. 8th, at Richmond, Surrey, as the result of an accident, George Kincaid Pitcairn, M.B., C.M. Edin.
SOUTHWELL.—On Jan. 6th, at Hill-street, Stoke-on-Trent, Charles Edward Southwell, L.R.C.S. & P. Edin.
VASEY.—On Jan. 7th, at Bromley, Kent, Samuel Archibald Vasey, F.I.C., F.C.S., in his 55th year.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

BOOKS, ETC., RECEIVED.

ARNOLD, EDWARD, London.
The Treatment of Diseases of the Skin. By W. Knowsley Sibley, M.D. 3rd. ed. Pp. 248. 12s. 6d.

BAILLIÈRE, TINDALL, AND COX, London.
Lunacy in India. By A. W. Overbeck-Wright, M.D. Pp. 406. 21s.
Syphilis and Venereal Diseases. By C. F. Marshall, M.D., and E. G. Ffrench, M.D. 4th ed. Pp. 434. 25s.

BALE, JOHN, SONS, AND DANIELSSON, London.
Transactions and Ninth Annual Report of the London Dermatological Society, with list of officers and members. Pp. 59. 2s. 6d.
Diseases of the Newborn. By Dr. August Ritter von Reuss, Director of the Department for the Newborn at the First University Women's Clinic in Vienna. Translation revised by J. D. Rolleston, M.D. Oxon. Pp. 626. 52s. 6d.

CHURCHILL, J. AND A., London.
Surgery. By Ivor Back, M.B., B.C., and A. Tudor Edwards, M.C. Pp. 480. 15s.

LEWIS, H. K., AND CO., London.
Infant Weight Chart (One ounce scale), 24½ × 20 in., folded in cover, 8 × 5 in. 2s. 6d.

Notes, Short Comments, and Answers to Correspondents.

SOME BIOLOGICAL ASPECTS OF DISEASE.

An Abstract of a Lecture delivered under the auspices of the Chadwick Trust, on Nov. 25th, 1920, by
Professor J. B. FARMER, F.R.S.

IN his introductory remarks the lecturer said that he proposed to dwell on certain peculiarities or properties of the higher organisms with which healthy and normal discharge of function is intimately connected. The illustrations of the points raised in the lecture were largely chosen from examples drawn from the plant kingdom, partly because from an experimental point of view plants were more readily accessible than animals, and also partly because the things of most fundamental importance were those which are common alike to animals and plants.

Interaction of Parts of an Organism.

Although our knowledge as yet was but relatively small, an outstanding fact was that one part of the organism could, and habitually did, influence other parts, limiting and directing their possibilities of growth and determining the particular mode of development which would be actually followed in any given individual. It was shown by means of a number of examples drawn from the study of plants, and supplemented by others from animal life, how the organisation of an individual depended on the mutual influence of its constituent cells one upon another. The coördinated growth which led to the development of a particular form depended on the serial (or sequential) nature of the reactions which went on in the cells and tissues of the organism. An intelligent recognition of this fact and of its consequences was essential to a proper appreciation of the larger problems both of health and disease; for anything which could modify the chemical changes concerned in the production of a "normal" organ or tissue was reflected in a departure, to a greater or less extent, from the particular form or structure normal for that organ or tissue.

Modification of Organisms by External Conditions.

The lecturer then went on to show, by consideration of a number of selected examples, how differences in chemical or physical environment might produce definite changes in the organism subjected to them. He further insisted that it must not therefore be concluded that only the external conditions mattered; a closer analysis of the facts emphasised the essential point that only when the environment was able to interfere at all, so to speak, with the protoplasm itself could a response of the kind indicated be obtained. In other words, the course of development in any given cell, or in any given individual, was only subject to modification by external conditions in so far as it was itself susceptible to influence by those conditions. For, on the one hand, the effects of temporary isolation of parts of the body from the material influences exerted by adjacent parts might result in a permanent loosening of those ties which previously served to knit the constituent cells into a coherent organism. On the other hand, union of parts hitherto separate might result in the formation of a synthetic new organism, different from those from which it—the new organism—had been built up. Lichens afforded a striking illustration of this fact. Other illustrations were provided in the new relations that are so commonly established between fungi and roots or other parts of the higher plants. Further aspects of the matter were opened up by a consideration of the various abnormal growths which could definitely be traced to the substances injected by parasitic animals, and a study of the formation of vegetable galls afforded a suggestive outlook on the consequences of the mutual relations here established between parasite and host.

From the foregoing considerations and conclusions, the lecturer passed on to a brief discussion of those various abnormal growths, or neoplasms, which originate as the result of obscure changes taking place within the cells themselves.

Cancer.

The normal course of events which produced and maintained what is called organisation could be upset in various ways. How did this circumstance affect our outlook on the mysterious disease which we called cancer? The fundamental fact was that certain body cells broke away from that coördinating elusive influence which controls normal development. The change is accompanied by cellular and nuclear modification, some of which had already been recognised, others perhaps not as yet. As Sir W. Collins had long maintained, no specific causal organism, so far as is known, is responsible for the incidence of cancerous development; probably various stimuli are able to effect that wonderful change. The result, however, was always the same—freedom from that control which is essential for the maintenance of an organised cell community. The tissue often exhibited rapid cell multiplication, which accompanied the newly acquired independence, and might lead to transplantations or metastases of cells which had been derived from the original cancer cells. This occurred in varied degrees, and the cells themselves might still retain, to some extent, the form and qualities of the typical tissue cells in which the change first appeared. The characteristic effect, however, always seemed to be to produce a more generalised type, recalling in some measure that of the lower organisms. An essential fact was that these transplanted cancerous units did not infect the tissues in which they came to lie, though they might, and often did, produce changes in the growth of the tissues, leading to the formation of the stroma.

The circumstance that this kind of tissue could rise from once normal cells, as the indirect result of stimuli of various kinds—e.g., continuous irritation and inflammation, the effects of lesion or of other less clearly ascertained precursory conditions—served to emphasise the need of a much more thorough biological examination than had hitherto been made. A suggestive example which showed how the protoplasm could change its behaviour under certain conditions was furnished by the events in the life-history of a myxomycete. These small organisms started life as a number of independent amœbiform cells, each with its own power of movement and growth. By-and-by a number of these fused to form a protoplasmic living mass of slime, which then behaved as a lowly but really organised entity, capable of feeding upon various nutritive substances. The coalescence of the individual amœbæ to form the plasmodium was followed immediately by the fusion, in pairs, of nuclei. As soon as this had taken place no more amœbæ were admitted as partners into the new cell republic, but any that approached sufficiently near it were drawn in and devoured.

Survey of the Present Position.

Although the cancer problem still remained for the most part (and from the point of view of its victims entirely) an unsolved one, it could nevertheless be attacked with a fair chance of success; but failure seemed to be inevitable, unless the right measures were adopted in attacking it. Surveying the present position we might well ask how much have we actually found out, how much nearer we were to the understanding of the causes which bring about these far-reaching changes in previously normal body cells—changes which endowed them with such appalling qualities. It had been discovered that the cell nuclei exhibited remarkable modifications; that those wonderful structures the chromosomes had undergone suggestive alterations both in number and in form. This in itself was a step in the right direction, and the lecturer believed we were justified in correlating the nuclear changes with the new properties acquired by the cells individually—in other words, that there was a causal nexus between nuclear change and functional disturbance. But if we were asked what started these complex changes in the cell nuclei, we should have to answer that as yet we did not know. The older assertions as to the existence of specific parasites, whether bacteria, yeasts, protozoa, or even helminthines, had not stood the test of closer examination. The more hopeful line of investigation seemed to point in the direction of chemical or physico-chemical disturbances, which might act in various ways and themselves be traceable to more than one source; but the *result* was clear, so far as it is known up to the present time. The cells so affected passed through certain definite changes, and became freed from those coördinating influences by which their chemical processes were previously regulated, and by which their multiplication had previously been held in check.

Such a complex problem as that of cancer was not likely to yield up its secrets till it had been broken down into the smaller components of which it constituted the formidable sum. The smaller problems must then be systematically attacked, and upon their solution the issue of the whole matter would finally depend. It appeared to be clear that success could only be reasonably looked for if the new investigations were planned from the first on sound general lines and placed in the hands of the very ablest men who could be found for the purpose. In spite of the dangers and difficulties lying in the way of organising research, the latter could be organised if wisdom, and not merely administration, ruled. Indeed, it had already been found practicable in dealing with other scientific problems or groups of problems, though on a relatively smaller scale.

General Nature of Required Research.

We should, for example, need to know far more than was known at present as to the precise nature of those influences

which, by controlling individual cellular activities, made possible the existence of an organism. In certain directions actual progress had already been made—for example, in the case of some internal secretions. Tasks such as these would fall naturally within the province of the physiologist and of the bio-chemist, both on the plant and on the animal side. Extensions into the region of comparative experimental research on the physiology and bio-chemistry of the lower organisms were also clearly indicated.

Far more must be known, also, of the minute cellular changes which were involved; this would fall within the scope of the cytologist. Furthermore, all that assistance which the medical profession alone was in a position to render would be required, inasmuch as cancer was most common in the human species, and from a practical point of view it was really to this circumstance that the real urgency of concerted action was mainly to be attributed. In order that such research, based on concentrated and coöperative action, might be carried on with a prospect of fruitful results, it was essential to attract and retain the best men. Ample means must be forthcoming for this purpose. The task itself was so big that unless we were prepared to see it through on a liberal scale it seemed hardly worth while to proceed with it at all, for judging by past experience, little was to be expected from isolated efforts or from half-measures. The question was, were we prepared to go on watching the daily ravages of an unsparing foe in our midst, which continued still to strike, even as other diseases struck, till they were brought under reasonable control by means of scientific discovery, first as to their real nature and immediate cause, and thence by rationally devised checks on their onslaught. It was true that so far as we could judge, this problem was far more complex than they have proved to be. It might well be that a long time would elapse before malignant disease could be brought under effective control; we should do well not to be too sanguine or too impatient.

The lecturer here emphatically stated that he was far from undervaluing the work now going on at various institutions in this and other countries; but it seemed to him that the full magnitude of the task had not been sufficiently realised, and hence that the means which were essential to success had hitherto been lacking.

Outline of a Scheme.

Although, he continued, it was obviously neither practical nor useful then and there to attempt to formulate a detailed scheme, he would venture to outline the principles which he believed should be kept in mind. About a dozen first-rate men attached to research in the different relevant branches of science should be working in collaboration, and they ought to be provided with the means of attracting to their laboratories a number of able research students. Of course, there would be difficulties, but he did not think they were insuperable. In order that such men might be attracted and retained, they should be really well paid and their future secured to them. The funds should be provided by the State, for the work would be for the benefit of the whole community. A large sum would be needed; the interest on one million sterling would not be too much to cover the annual expenditure required by the scheme as the lecturer visualised it. But not much could be hoped for unless the country was prepared to shoulder the expense and provide for something much better than had heretofore existed.

THE DOCTOR'S FREEDOM OF SERVICE: THE AMERICAN VIEW.

A RECENT issue of the *Journal of the American Medical Association* devoted a long leading article to Mr. Ernest Hutchinson's play, *The Right to Strike*, drawn from the annotation columns of THE LANCET and from the letters of Dr. A. Cox and Dr. A. Welply, from which it is concluded that it was not a strike which was proposed but a "measure of reprisal." We mention the article here in order to call attention to an interesting ethical statement on the physician's freedom of service issued by the American Medical Association. It runs as follows:—

> A physician is free to choose whom he will serve. He should, however, always respond to any request for his assistance in an emergency or whenever temperate public opinion expects the service. Once having undertaken a case a physician should not abandon or neglect the patient because the disease is deemed incurable; nor should he withdraw from the case for any reason until a sufficient notice of a desire to be released has been given the patient or his friends to make it possible for them to secure another medical attendant. This question must be determined between the individuals who are primarily interested. It cannot be settled on the basis of principles governing the ethical relationships of groups.

In passing we remark on a curious inability to quote correctly. The "personal service" of our annotation is rendered quite inappropriately "professional services."

PORTEOUS "MAZES."

To the Editor of THE LANCET.

SIR,—In reference to your answer to "S. M. O." in your issue of to-day's date may I say that the Porteous "mazes" can be obtained from the C. H. Stoelting Company, 3037-3047, Carroll-avenue, Chicago, Illinois, U.S.A. Almost any kind of psychological apparatus can be got from this firm. And it is not creditable to British enterprise that, so far as I know, there is no firm in this country which acts as agent for this form of scientific goods. Apart from the trouble of ordering from, and remitting to, America, a British depôt would have the great advantage of enabling one to inspect some particular form of apparatus before purchasing it. It is annoying to purchase some form of test and then to find it unsuited for the particular purpose for which one wanted it.

I am, Sir, yours faithfully,
M. HAMBLIN SMITH.

H.M. Prison, Birmingham, Jan. 8th, 1921.

DISABLED officers and nurses who served during the war, along with the widows and dependants of deceased officers, can obtain advice and information regarding their rights under the regulations of the Ministry of Pensions by applying to the "Officers' Friend," Ministry of Pensions, Cromwell House, London, S.W. 1, or to the "Officers' Friend" at any of the regional offices of the Ministry—viz., Burton Court, Chelsea, S.W. 1., Newcastle-on-Tyne, Manchester, Bristol, Leeds, Nottingham, Birmingham, Edinburgh, Dublin, Belfast, or Cardiff.

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